

【0093】

TLC:Rf 0.33 (酢酸エチル:ヘキサン=1:1);

NMR (DMSO- d_6) : δ 10.94 (s, 1H), 8.67 (s, 1H), 8.25 (bs, 1H), 7.97(s, 2H), 7.65 (bs, 1H), 7.25 (t, J = 7.8 Hz, 1H), 6.76-6.64 (m, 3H), 3.69 (s, 3H), 1.35-1.20 (m, 1H), 0.72-0.63 (m, 2H), 0.52-0.43 (m, 2H)。

【0094】

実施例 1(9)

1-メチル-3-シクロプロピル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 29】

[0093]

TLC:Rf 0.33 (ethylacetate :hexane =1:1);

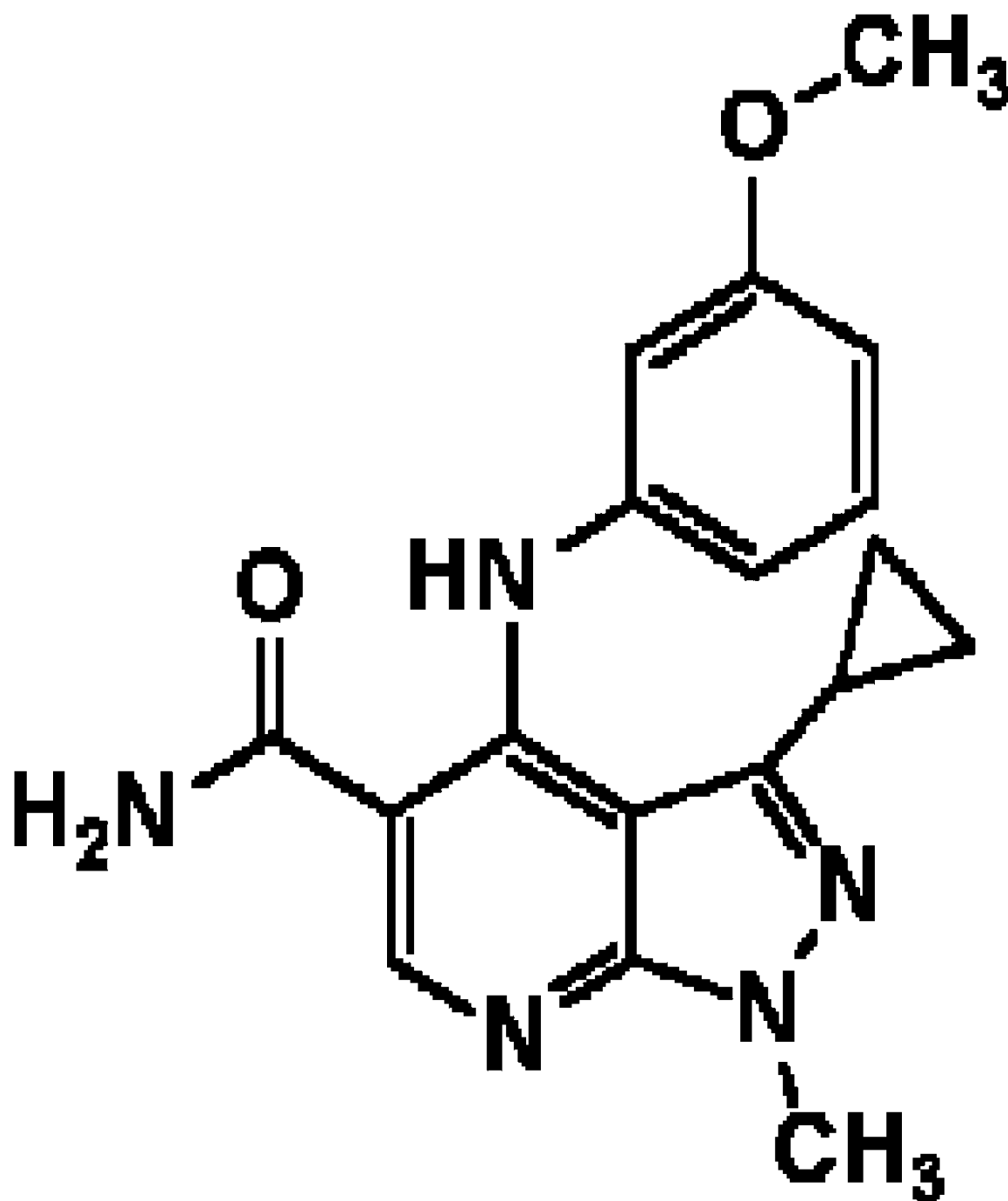
nmr (DMSO - d_6) : δ 10.94 (s, 1H), 8.67 (s, 1H), 8.25 (bs, 1H), 7.97 (s, 2H), 7.65 (bs, 1H), 7.25 (t, J=7.8Hz, 1H),6.76 - 6.64 (m, 3H), 3.69 (s, 3H), 1.35 - 1.20 (m, 1H), 0.72 - 0.63 (m, 2H), 0.52 - 0.43(m, 2H).

[0094]

Working Example 1 (9)

1 -methyl -3- cyclopropyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 29]



【0095】

TLC:Rf 0.33 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.00 (s, 1H), 8.74 (s, 1H), 8.22 (bs, 1H), 7.57(bs, 1H), 7.19 (t, J = 7.8 Hz, 1H), 6.69-6.60 (m, 3H), 3.87 (s, 3H), 3.68 (s, 3H), 1.26-1.14 (m, 1H), 0.70-0.60 (m, 2H), 0.44-0.34 (m, 2H)。

[0095]

TLC:Rf 0.33 (ethylacetate);

nmr (DMSO - d_6): δ 11.00 (s, 1H), 8.74 (s, 1H), 8.22 (bs, 1H), 7.57 (bs, 1H), 7.19 (t, J=7.8Hz, 1H), 6.69 - 6.60(m, 3H), 3.87 (s, 3H), 3.68 (s, 3H), 1.26 - 1.14 (m, 1H), 0.70 - 0.60 (m, 2H), 0.44 - 0.34 (m, 2H).

【0096】

実施例 1(10)

1-メチル-3-(チオフェン-2-イル)-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

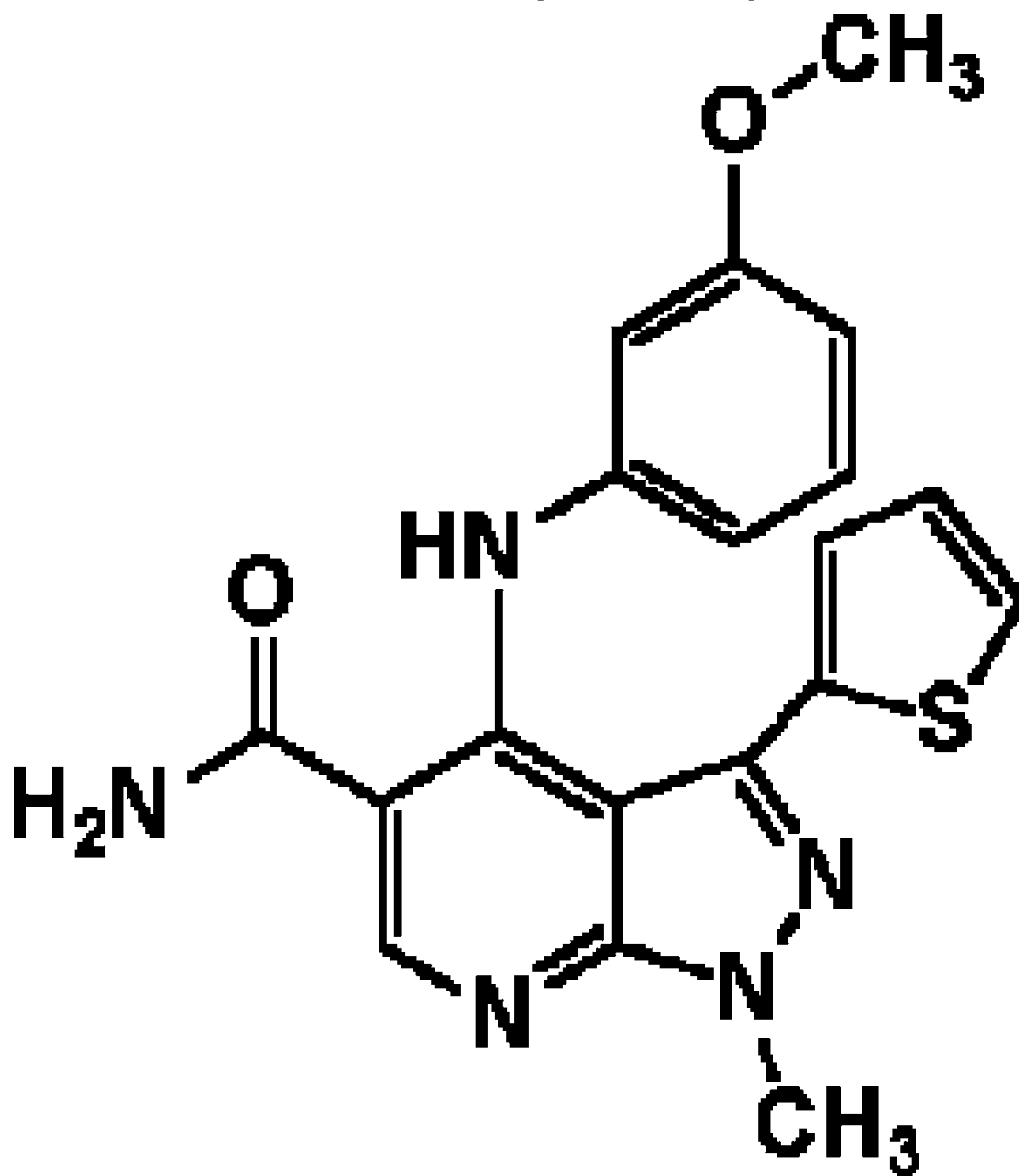
【化 30】

[0096]

Working Example 1 (10)

1 -methyl -3- (thiophene -2- yl) - 4 - (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 30]



【0097】

TLC:Rf 0.36 (酢酸エチル);

NMR (DMSO-d₆) : δ 11.12 (1H), 8.84 (s, 1H), 8.29 (bs, 1H), 7.66 (bs, 1H), 7.25 (dd, J = 5.1, 0.9 Hz, 1H), 6.92 (dd, J = 3.6, 0.9 Hz, 1H), 6.81 (t, J = 7.5 Hz, 1H), 6.66 (dd, J = 5.1, 3.6 Hz, 1H), 6.37-6.24 (m, 3H), 4.04 (s, 3H), 3.55 (s, 3H)。

【0098】

実施例 1(11)

1-メチル-3-(4-クロロフェニル)-4-(3-メトキシフェニル)アミノピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 31】

[0097]

TLC:Rf 0.36 (ethylacetate);

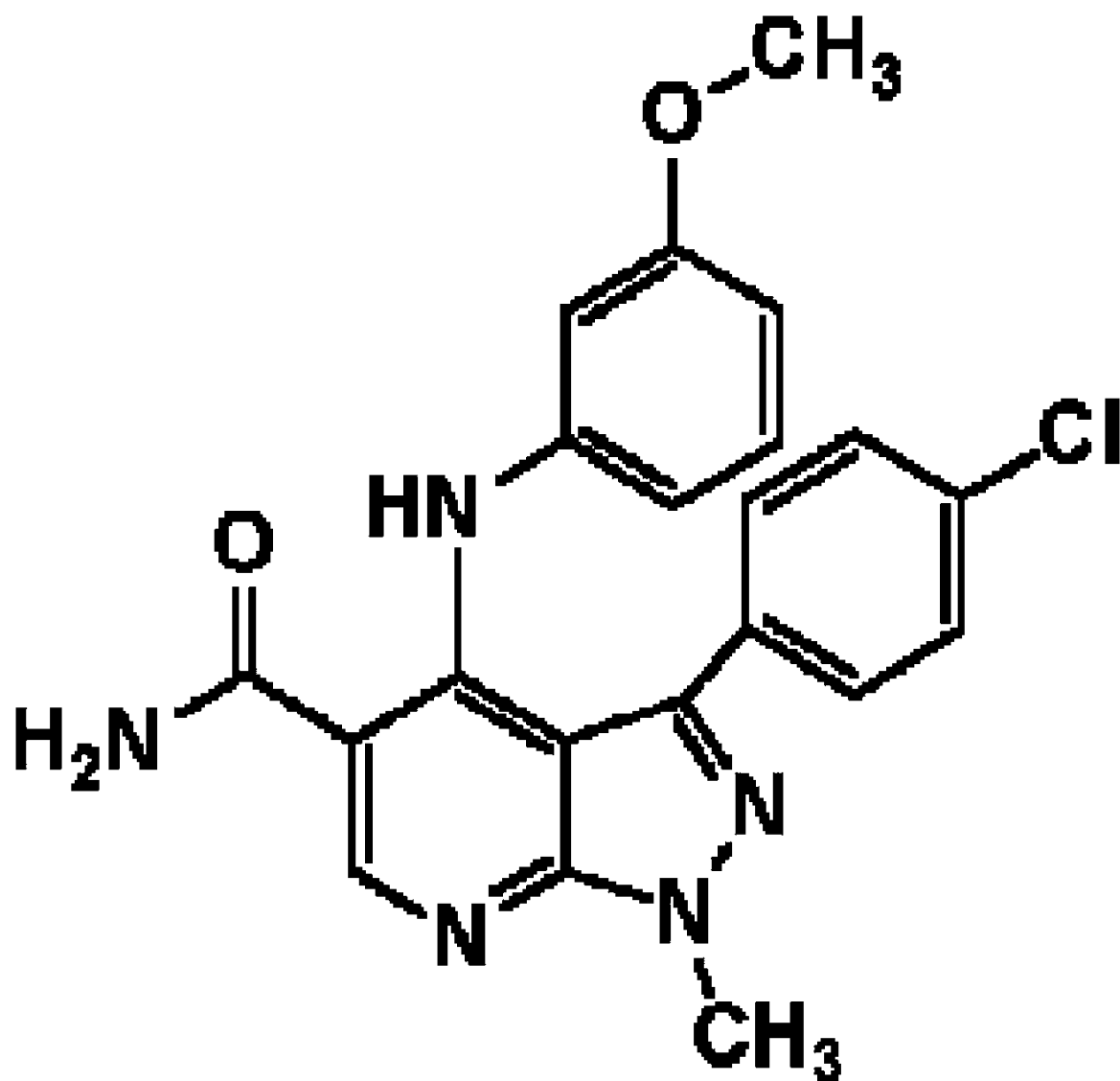
nmr (DMSO -d₆) : δ 11.12 (1 H), 8.84 (s, 1H), 8.29 (bs, 1H), 7.66 (bs, 1H), 7.25 (dd, J=5.1, 0.9Hz, 1H), 6.92 (dd, J=3.6, 0.9Hz, 1H), 6.81 (t, J=7.5Hz, 1H), 6.66 (dd, J=5.1, 3.6Hz, 1H), 6.37 - 6.24 (m, 3H), 4.04 (s, 3H), 3.55 (s, 3H).

[0098]

Working Example 1 (11)

1 -methyl -3- (4 -chlorophenyl) - 4 - (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 31]



【0099】

TLC:Rf 0.35 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.22 (s, 1H), 8.85 (s, 1H), 8.30 (bs, 1H), 7.65(bs, 1H), 7.26 (d, J = 8.4 Hz, 2H), 7.10 (d, J = 8.4 Hz, 2H), 6.80-6.70(m, 1H), 6.28-6.20 (m, 3H), 4.04 (s, 3H), 3.54 (s, 3H)。

【0100】

実施例 1(12)

1-フェニル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 32】

[0099]

TLC:Rf 0.35 (ethylacetate);

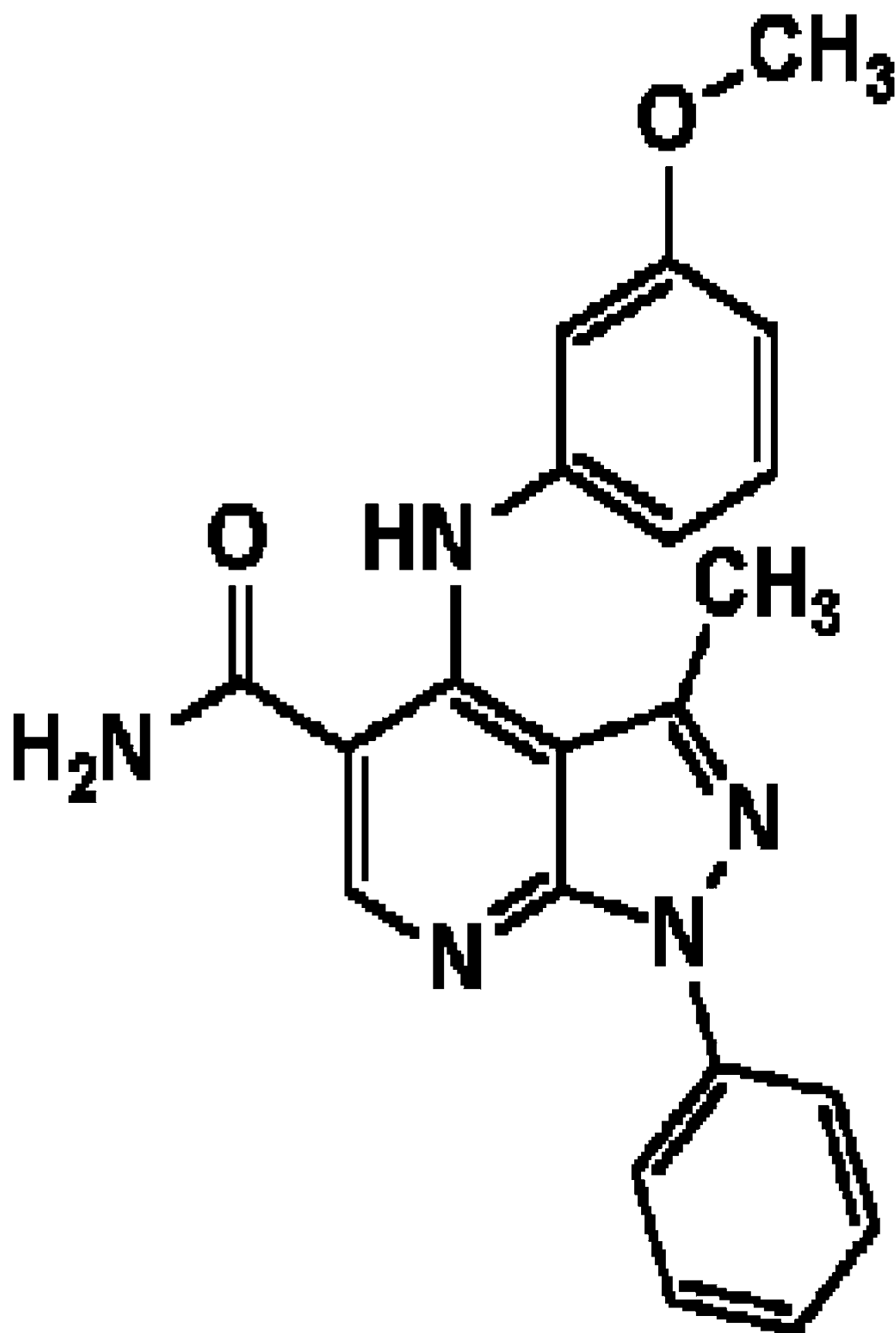
nmr (DMSO - d_6) : δ 11.22 (s, 1H), 8.85 (s, 1H), 8.30 (bs, 1H), 7.65 (bs, 1H), 7.26 (d, J=8.4Hz, 2H), 7.10 (d, J=8.4Hz, 2H), 6.80 - 6.70 (m, 1H), 6.28 - 6.20 (m, 3H), 4.04 (s, 3H), 3.54 (s, 3H) .

[0100]

Working Example 1 (12)

1 -phenyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 32]



【0101】

TLC:Rf 0.43 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.56 (s, 1H), 8.60 (s, 1H), 8.12-8.09 (m, 2H), 7.53-7.48 (m, 2H), 7.26-7.18 (m, 2H), 6.78-6.69 (m, 3H), 5.90-5.70 (brs, 2H), 3.77 (s, 3H), 1.77 (s, 3H)。

【0102】

実施例 1(13)

1-メチル-3-*t*-ブチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-*b*]ピリジン-5-カルボキサミド

【化 33】

[0101]

TLC:Rf 0.43 (chloroform :methanol =9 : 1);

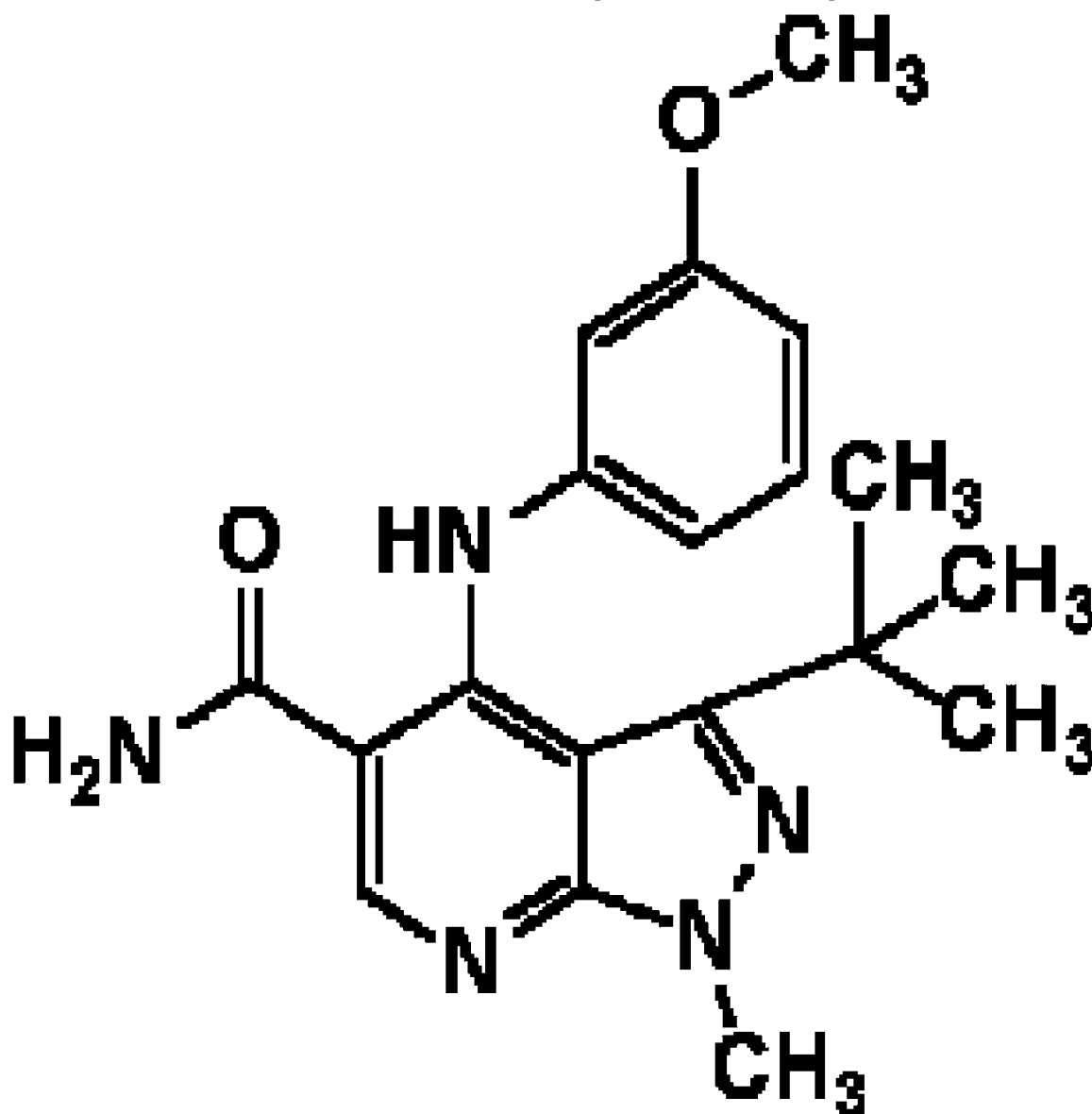
nmr (CDCl₃): δ 10.56 (s, 1H), 8.60 (s, 1H), 8.12 - 8.09 (m, 2H), 7.53 - 7.48 (m, 2H), 7.26 - 7.18 (m, 2H), 6.78 - 6.69 (m, 3H), 5.90 - 5.70 (brs, 2H), 3.77 (s, 3H), 1.77 (s, 3H).

[0102]

Working Example 1 (13)

1 -methyl -3- *t*-butyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 33]



【0103】

TLC:Rf 0.30 (酢酸エチル);

NMR (DMSO- d_6) : δ 8.62 (s, 1H), 8.14 (s, 1H), 7.73 (bs, 1H), 7.39 (bs, 1H), 7.03 (t, J = 8.4 Hz, 1H), 6.43-6.35 (m, 1H), 6.27-6.20 (m, 2H), 3.99 (s, 3H), 3.64 (s, 3H), 1.33 (s, 9H)。

【0104】

実施例 1(14)

1-フェニル-3-シクロプロピル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 34】

[0103]

TLC:Rf 0.30 (ethylacetate);

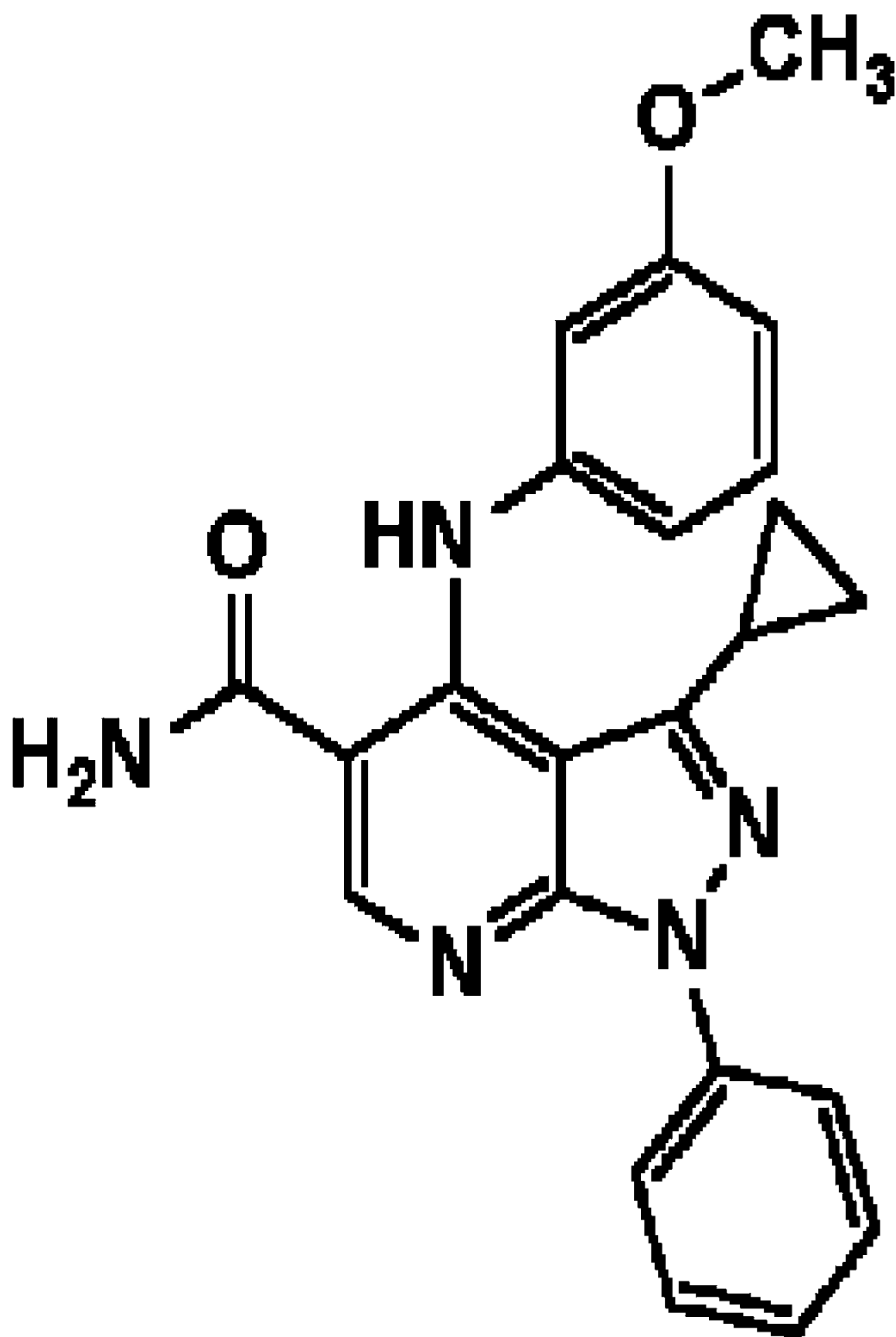
nmr (DMSO - d_6): δ 8.62 (s, 1H), 8.14 (s, 1H), 7.73 (bs, 1H), 7.39 (bs, 1H), 7.03 (t, J=8.4Hz , 1H), 6.43 - 6.35(m, 1H), 6.27 - 6.20 (m, 2H), 3.99 (s, 3H), 3.64 (s, 3H), 1.33 (s, 9H).

[0104]

Working Example 1 (14)

1 -phenyl -3- cyclopropyl -4- (3 -methoxyphenyl amino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 34]



【0105】

TLC:Rf 0.44 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.50 (s, 1H), 8.61 (s, 1H), 8.12 (t, J = 7.5 Hz, 2H), 7.49 (t, J = 8.1 Hz, 2H), 7.31-7.17 (m, 2H), 6.78-6.62 (m, 3H), 6.00-5.60 (brs, 2H), 1.37- 1.25 (m, 1H), 0.90-0.81 (m, 2H), 0.53-0.48 (m, 2H)。

【0106】

実施例 1(15)

1-メチル-3-フェニル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 35】

[0105]

TLC:Rf 0.44 (chloroform :methanol =9 : 1);

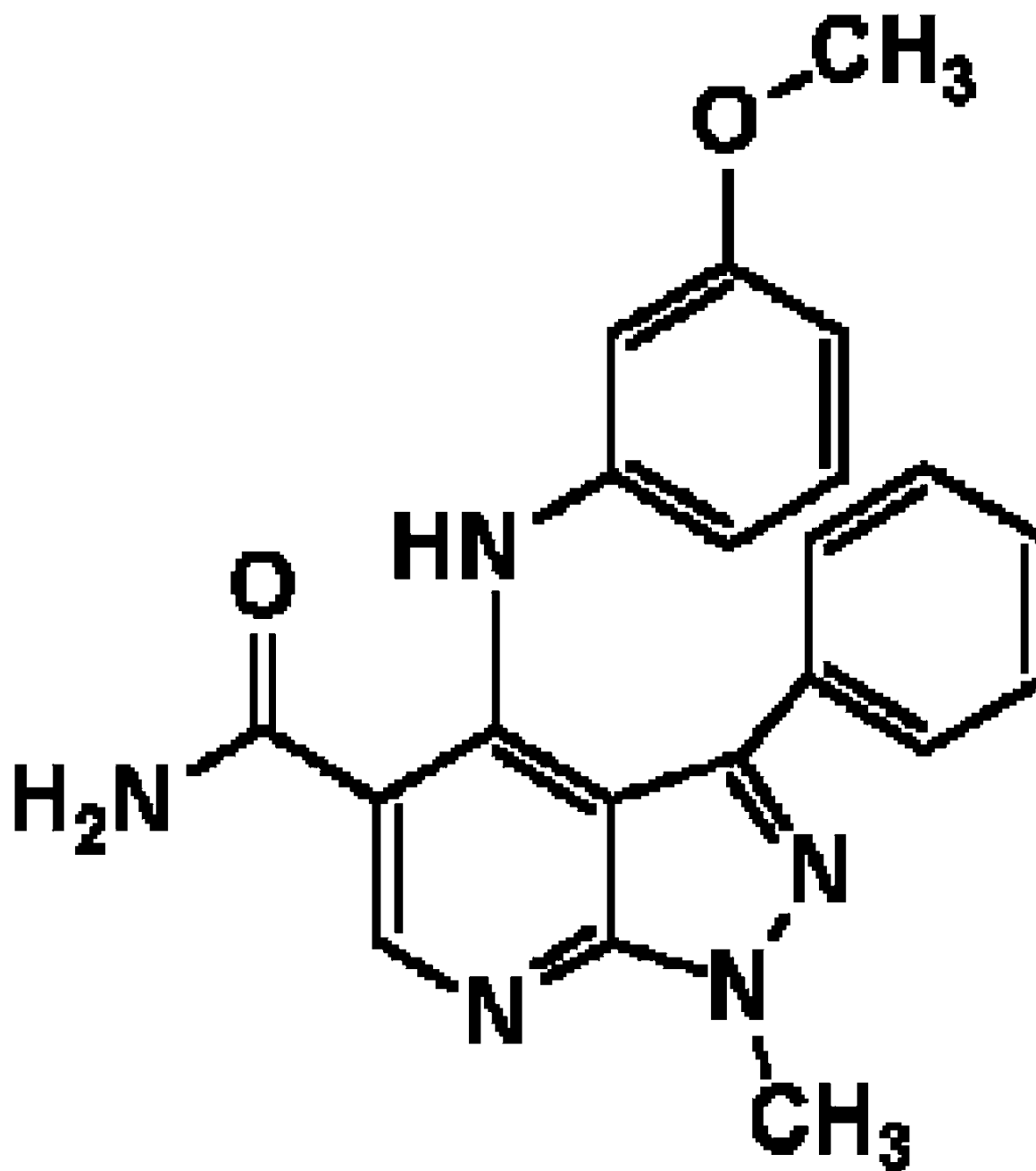
nmr (CDCl₃):δ 10.50 (s, 1H), 8.61 (s, 1H), 8.12 (t, J=7.5Hz , 2H), 7.49 (t, J=8.1Hz , 2H), 7.31 - 7.17 (m, 2H), 6.78- 6.62 (m, 3H), 6.00 - 5.60 (brs, 2H), 1.37 - 1.25 (m, 1H), 0.90 - 0.81 (m, 2H), 0.53 - 0.48(m, 2H).

[0106]

Working Example 1 (15)

1 -methyl -3- phenyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 35]



【0107】

TLC:Rf 0.46 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.47 (s, 1H), 8.64 (s, 1H), 7.35-7.31 (m, 2H), 7.11-7.06 (m, 3H), 6.75 (t, J = 8.1 Hz, 1H), 6.37- 6.32 (m, 1H), 6.26-6.19(m, 2H), 5.90-5.75 (brs, 2H), 4.14 (s, 3H), 3.59 (s, 3H)。

【0108】

[0107]

TLC:Rf 0.46 (chloroform :methanol =9 : 1);

nmr (CDCl₃):δ 10.47 (s, 1H), 8.64 (s, 1H), 7.35 - 7.31 (m, 2H), 7.11 - 7.06 (m, 3H), 6.75(t, J=8.1Hz , 1H), 6.37 - 6.32 (m, 1H), 6.26 - 6.19 (m, 2H), 5.90 - 5.75 (brs, 2H), 4.14 (s, 3H), 3.59 (s, 3H) .

[0108]

実施例 1(16)

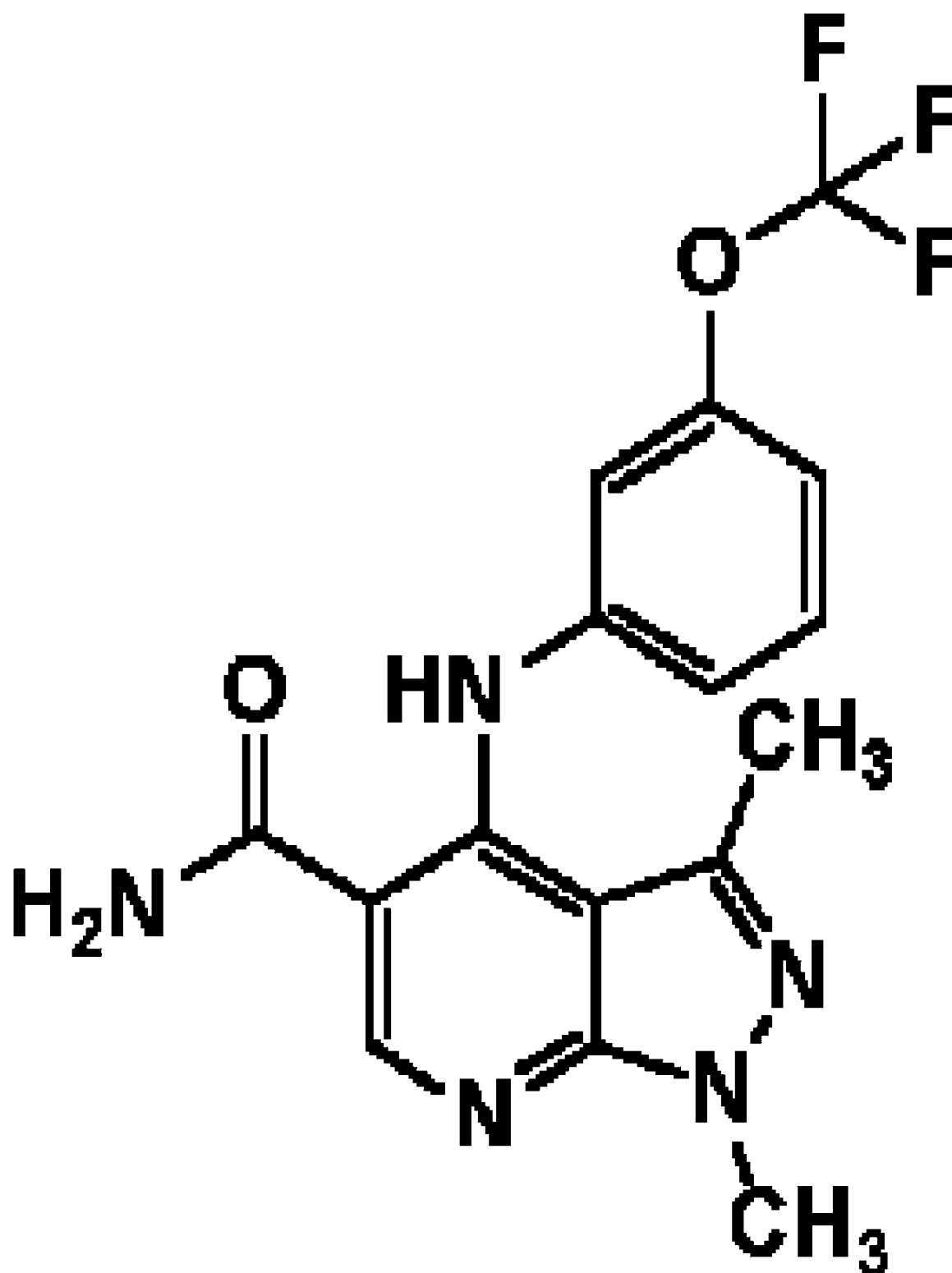
1,3-ジメチル-4-(3-トリフロオロメトキシフェニルア
ミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 36】

Working Example 1 (16)

1 and 3 -dimethyl -4- (3 -tri fluoro methoxyphenyl amino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 36]



【0109】

TLC:Rf 0.30 (酢酸エチル);

[0109]

TLC:Rf 0.30 (ethylacetate);

NMR (DMSO- d_6) : δ 10.97 (s, 1H), 8.78 (s, 1H), 8.26 (bs, 1H), 7.62(bs, 1H), 7.48-7.37 (m, 1H), 7.16-7.05 (m, 3H), 3.92 (s, 3H), 1.71 (s, 3H)。

【0110】

実施例 1(17)

1,3-ジメチル-4-(3-トリフロロメチルチオフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 37】

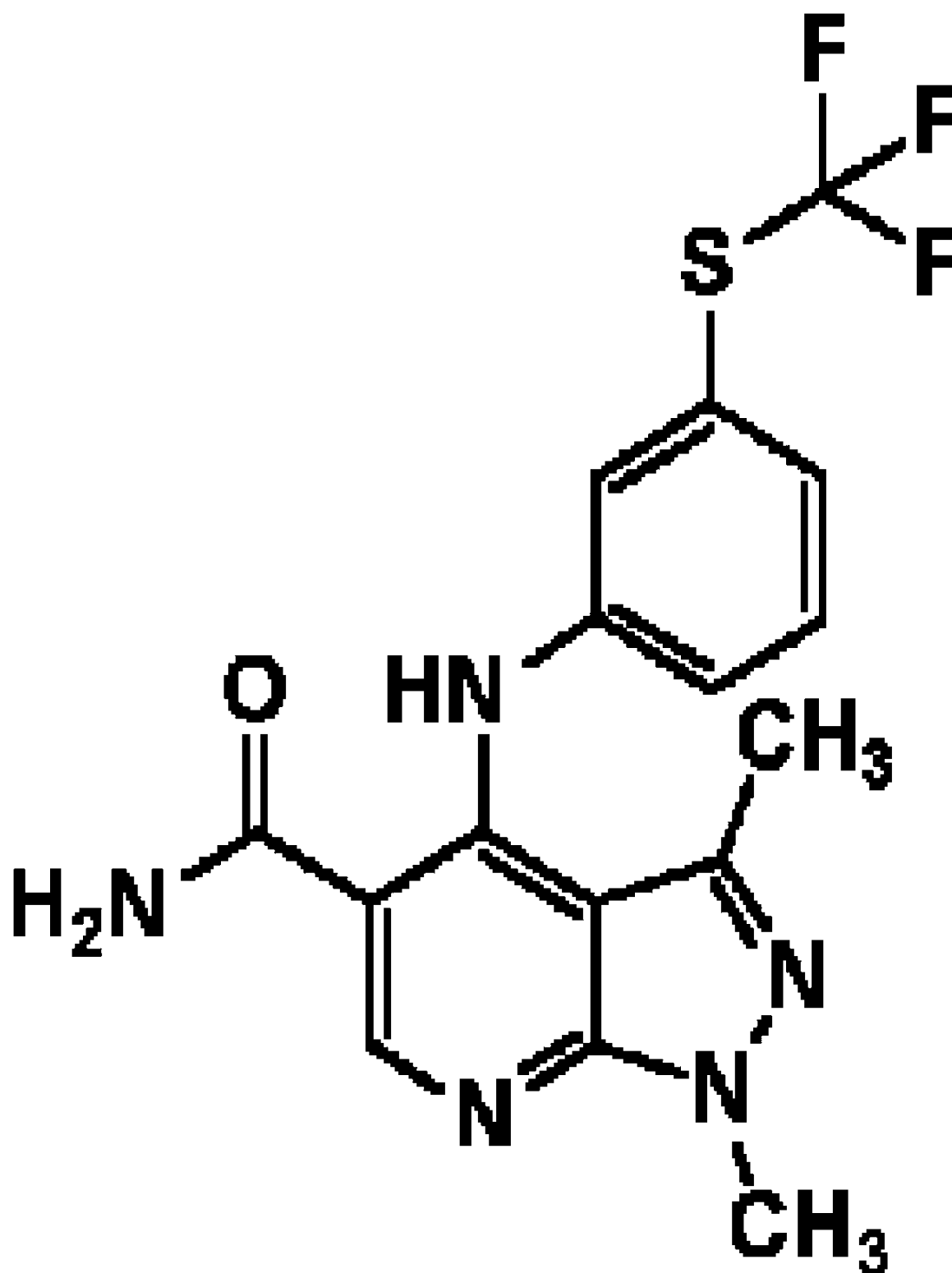
nmr (DMSO - d_6) : δ 10.97 (s, 1H), 8.78 (s, 1H), 8.26 (bs, 1H), 7.62 (bs, 1H), 7.48 - 7.37 (m, 1H), 7.16-7.05 (m, 3H), 3.92 (s, 3H), 1.71 (s, 3H).

[0110]

Working Example 1 (17)

1 and 3 -dimethyl -4- (3 -trifluoromethyl thiophenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 37]



【0111】

TLC:Rf 0.30 (酢酸エチル);

[0111]

TLC:Rf 0.30 (ethylacetate);

NMR (DMSO- d_6) : δ 11.04 (s, 1H), 8.79 (s, 1H), 8.29 (bs, 1H), 7.63(bs, 1H), 7.54-7.32 (m, 4H), 3.92 (s, 3H), 1.66 (s, 3H)。

【0112】

実施例 1(18)

1,3-ジメチル-4-(3-エトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 38】

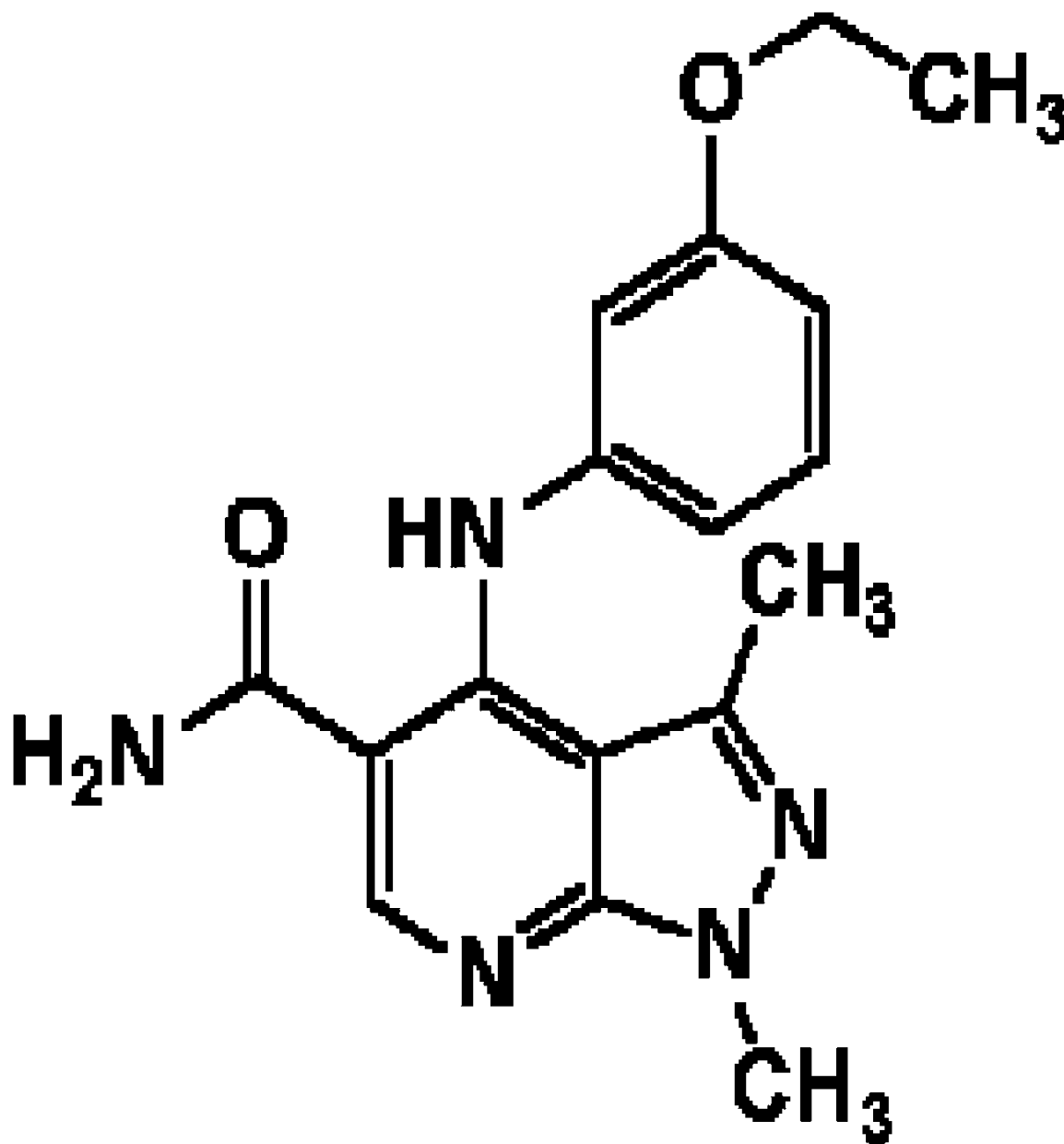
nmr (DMSO - d_6) : δ 11.04 (s, 1H), 8.79 (s, 1H), 8.29 (bs, 1H), 7.63 (bs, 1H), 7.54 - 7.32 (m, 4H), 3.92(s, 3H), 1.66 (s, 3H).

[0112]

Working Example 1 (18)

1 and 3 -dimethyl -4- (3 -ethoxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 38]



【0113】

[0113]

TLC:Rf 0.36 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.58 (s, 1H), 8.52 (s, 1H), 7.21-7.15 (m, 1H), 6.72-6.65 (m, 3H), 5.85-5.60 (brs, 2H), 3.99 (s, 3H), 3.97 (q, J = 6.9 Hz, 2H), 1.77 (s, 3H), 1.37 (t, J = 6.9 Hz, 3H).

【0114】

実施例 1(19)

1,3-ジメチル-4-(3-イソプロピルオキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 39】

TLC:Rf 0.36 (chloroform :methanol =9 : 1);

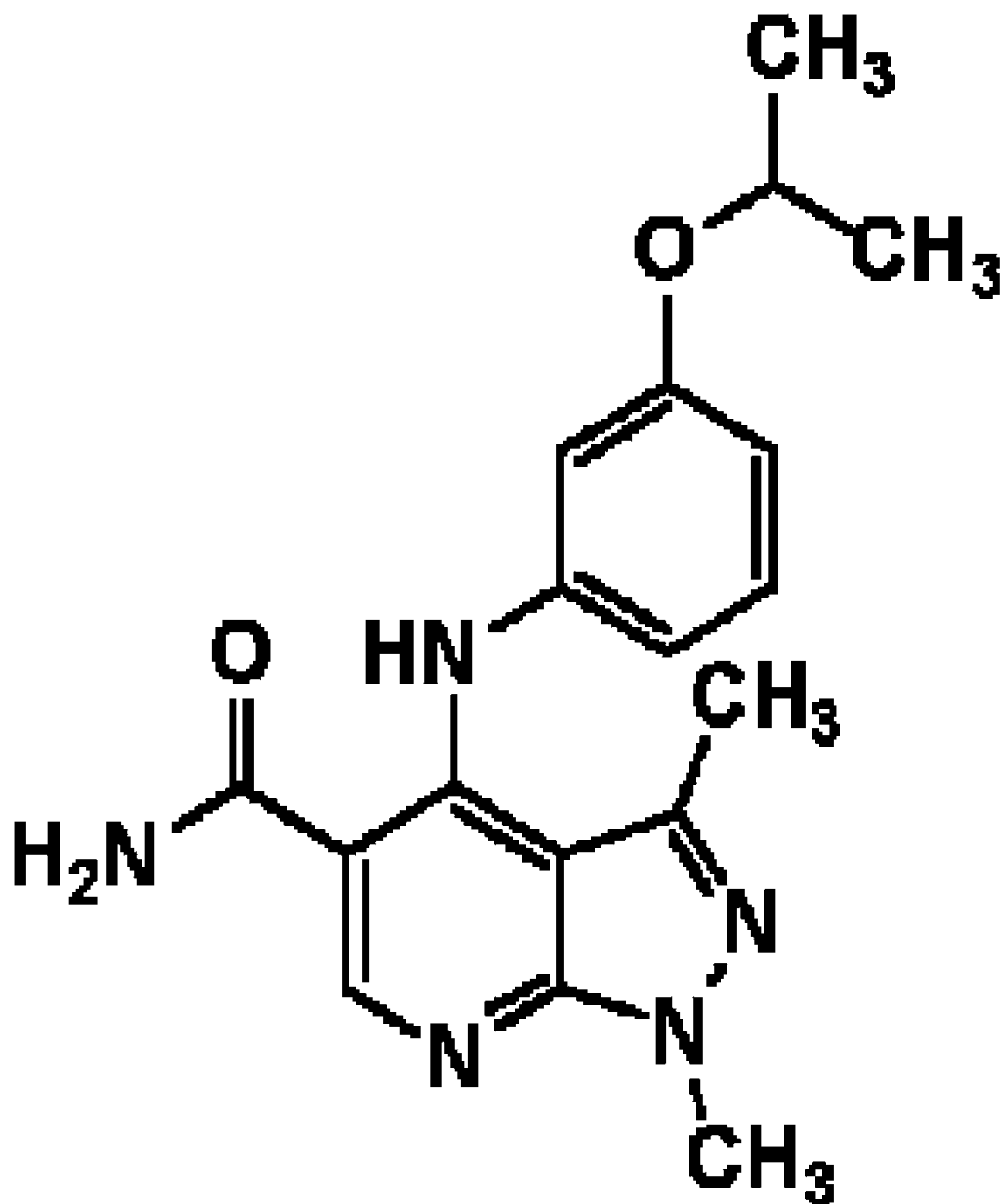
nmr (CDCl₃) : δ 10.58 (s, 1H), 8.52 (s, 1H), 7.21 - 7.15 (m, 1H), 6.72 - 6.65 (m, 3H), 5.85 - 5.60 (brs, 2H), 3.99 (s, 3H), 3.97 (q, J=6.9Hz , 2H), 1.77 (s, 3H), 1.37 (t, J=6.9Hz , 3H).

[0114]

Working Example 1 (19)

1 and 3 -dimethyl -4- (3 -isopropyl oxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 39]



【0115】

TLC:Rf 0.41 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.58 (s, 1H), 8.52 (s, 1H), 7.20-7.13 (m, 1H), 6.72-6.65 (m, 3H), 5.85-5.60 (brs, 2H), 4.48 (sept, J = 6.0 Hz, 1H), 3.99 (s, 3H), 1.77 (s, 3H), 1.29 (d, J = 6.0 Hz, 6H)。

[0115]

TLC:Rf 0.41 (chloroform :methanol =9 : 1);

nmr (CDCl₃): δ 10.58 (s, 1H), 8.52 (s, 1H), 7.20 - 7.13 (m, 1H), 6.72 - 6.65 (m, 3H), 5.85 -5.60 (brs, 2H), 4.48 (sept, J=6.0Hz, 1H), 3.99 (s, 3H), 1.77 (s, 3H), 1.29 (d, J=6.0Hz, 6H).

【0116】

実施例 1(20)

1,3-ジメチル-4-(3-フェニルフェニルアミノ)ピラゾ
ロ[5,4-b]ピリジン-5-カルボキサミド

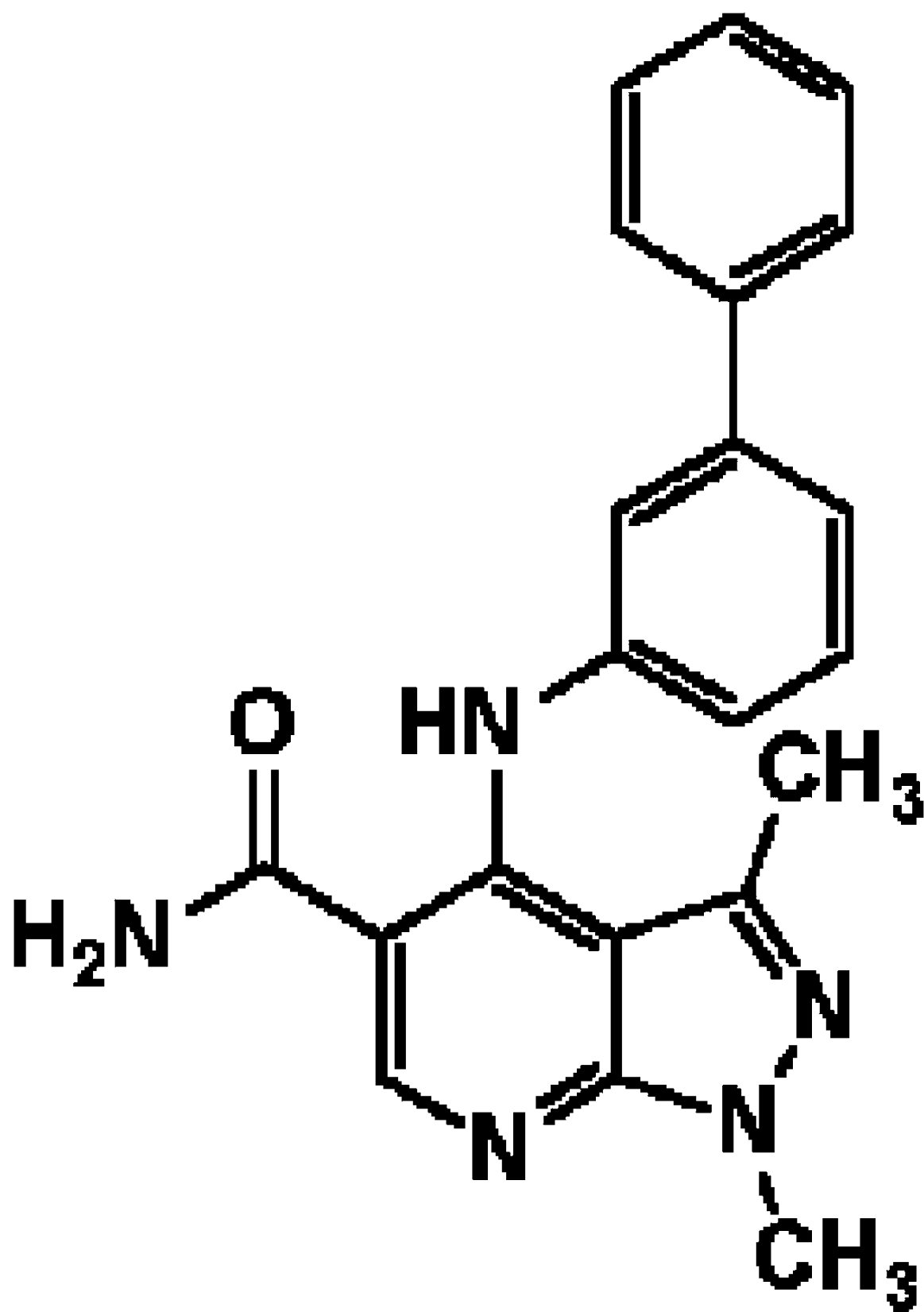
【化 40】

[0116]

Working Example 1 (20)

1 and 3 -dimethyl -4- (3 -phenyl phenylamino) pyrazolo [5
and 4 -b] pyridine -5-carboxamide

[Chemical Formula 40]



【0117】

TLC:Rf 0.32 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 11.10 (s, 1H), 8.75 (s, 1H), 8.30-8.10 (brs, 1H), 7.60-7.57 (m, 3H), 7.45-7.34 (m, 6H), 7.13-7.04 (m, 1H), 3.88 (s, 3H), 1.66 (s, 3H)。

【0118】

実施例 1(21)

1,3-ジメチル-4-(3-ベンジルオキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 41】

[0117]

TLC:Rf 0.32 (chloroform :methanol =9 : 1);

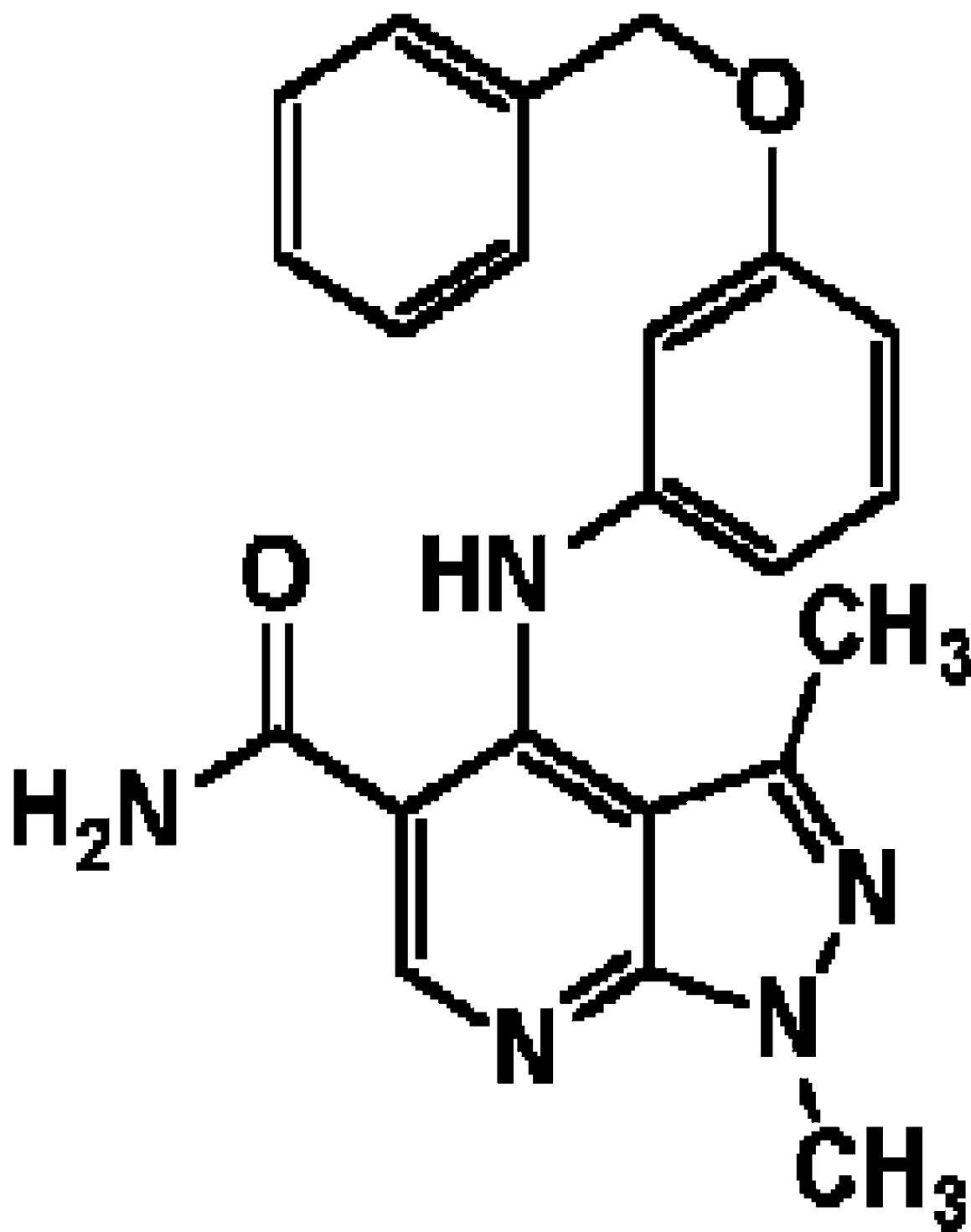
nmr (DMSO - d_6): δ 11.10 (s, 1H), 8.75 (s, 1H), 8.30 - 8.10 (brs, 1H), 7.60 - 7.57 (m, 3H), 7.45 -7.34 (m, 6H), 7.13 - 7.04 (m, 1H), 3.88 (s, 3H), 1.66 (s, 3H).

[0118]

Working Example 1 (21)

1 and 3 -dimethyl -4- (3 -benzyloxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 41]



【0119】

TLC:Rf 0.28 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.94 (s, 1H), 8.72 (s, 1H), 8.23-8.10 (brs, 1H), 7.60-7.50 (brs, 1H), 7.40-7.29 (m, 5H), 7.19 (t, J = 8.7 Hz,

[0119]

TLC:Rf 0.28 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 10.94 (s, 1H), 8.72 (s, 1H), 8.23 - 8.10 (brs, 1H), 7.60 - 7.50 (brs, 1H), 7.40 - 7.29 (m, 5H), 7.19 (t, J=8.7Hz, 1H), 6.78 - 6.75 (m, 2H), 6.64

1H), 6.78-6.75 (m, 2H), 6.64 (d, J = 8.7 Hz, 1H), 5.06 (s, 2H), 3.87 (s, 3H), 1.64 (s, 3H).

【0120】

実施例 1(22)

1,3-ジメチル-4-(3-ニトロフェニルアミノ)ピラゾロ [5,4-b]ピリジン-5-カルボキサミド

【化 42】

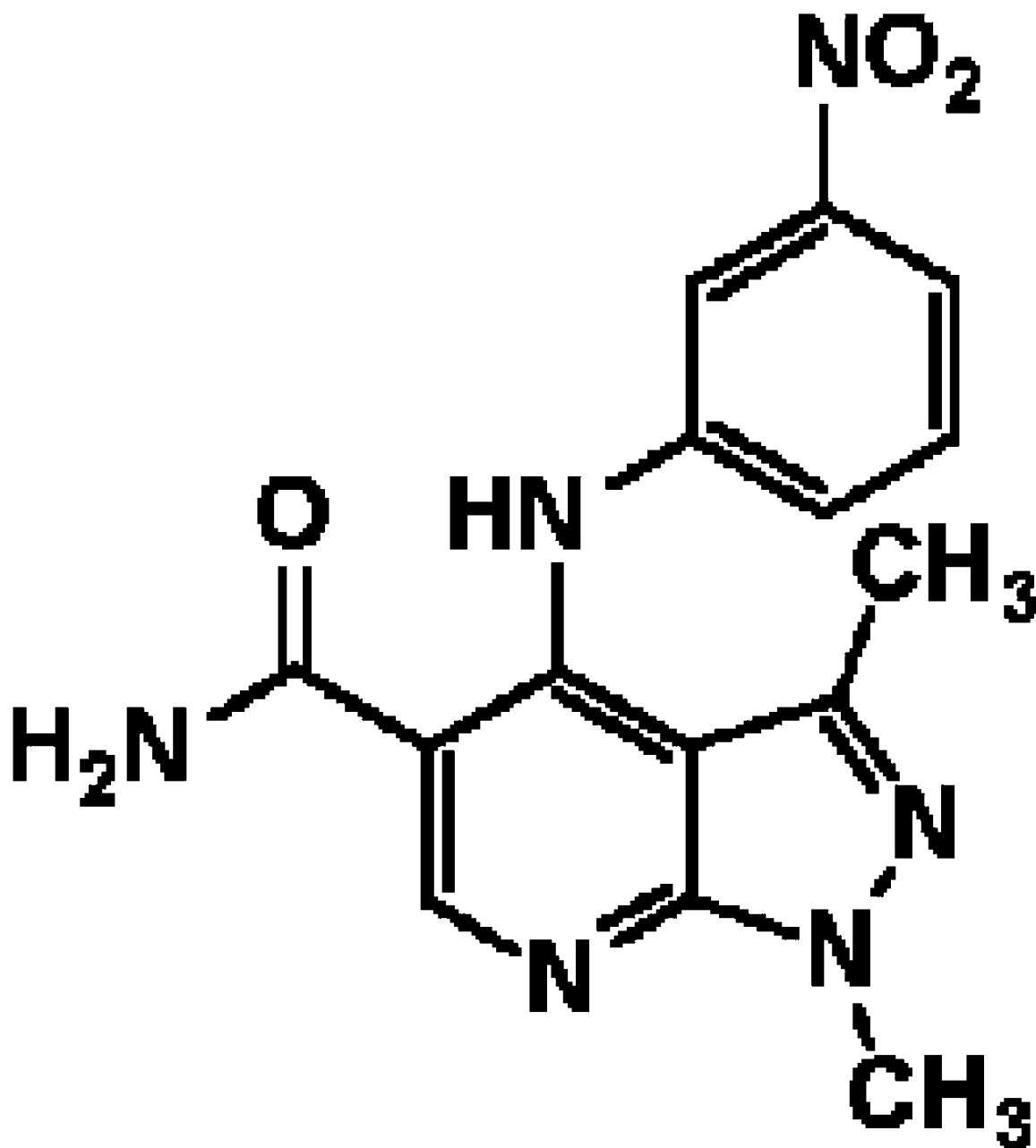
(d, J=8.7Hz, 1H), 5.06 (s, 2H), 3.87 (s, 3H), 1.64 (s, 3H).

[0120]

Working Example 1 (22)

1 and 3 -dimethyl -4- (3 -nitrophenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 42]



【0121】

[0121]

TLC:Rf 0.28 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.81 (s, 1H), 8.77 (s, 1H), 8.24 (brs, 1H), 7.90-7.84 (m, 2H), 7.62 (brs, 1H), 7.58-7.46 (m, 2H), 3.93 (s, 3H), 1.80 (s, 3H).

【0122】

実施例 1(23)

1,3-ジメチル-4-(3-アセチルフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 43】

TLC:Rf 0.28 (chloroform :methanol =9 : 1);

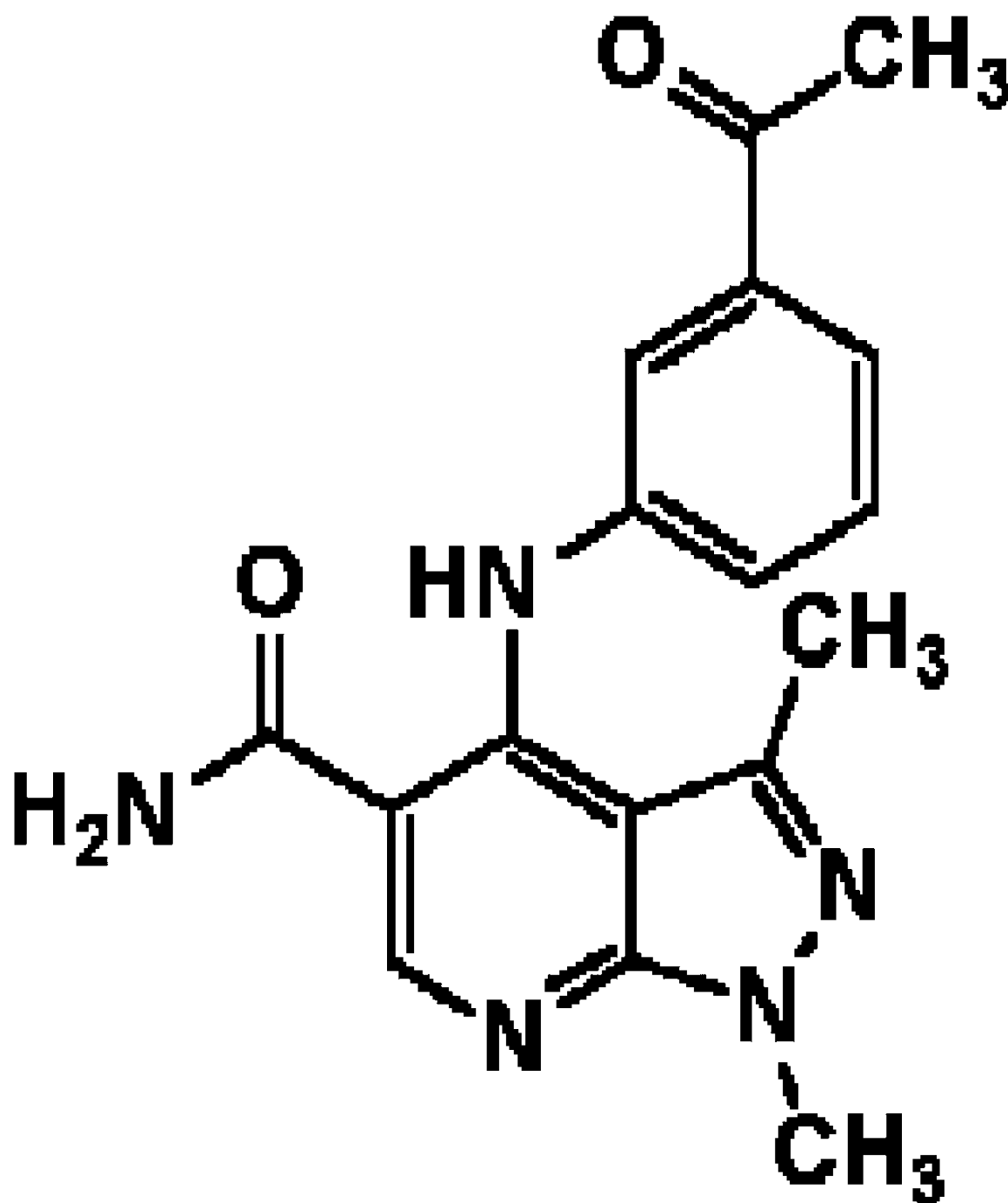
nmr (DMSO - d_6) : δ 10.81 (s, 1H), 8.77 (s, 1H), 8.24 (brs, 1H), 7.90 - 7.84 (m, 2H), 7.62 (brs, 1H), 7.58- 7.46 (m, 2H), 3.93 (s, 3H), 1.80 (s, 3H).

[0122]

Working Example 1 (23)

1 and 3 -dimethyl -4- (3 -acetyl phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 43]



【0123】

TLC:Rf 0.30 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.00 (s, 1H), 8.77 (s, 1H), 8.24 (bs, 1H), 7.70(d, J = 7.5 Hz, 1H), 7.63 (s, 1H), 7.59 (bs, 1H), 7.46 (t, J = 7.5 Hz, 1H), 7.35 (d, J = 7.5 Hz, 1H), 3.91 (s, 3H), 2.54 (s, 3H), 1.65 (s, 3H)。

[0123]

TLC:Rf 0.30 (ethylacetate);

nmr (DMSO - d_6): δ 11.00 (s, 1H), 8.77 (s, 1H), 8.24 (bs, 1H), 7.70 (d, J=7.5Hz, 1H), 7.63 (s, 1H), 7.59 (bs, 1H), 7.46 (t, J=7.5Hz, 1H), 7.35 (d, J=7.5Hz, 1H), 3.91 (s, 3H), 2.54 (s, 3H), 1.65 (s, 3H) .

【0124】

実施例 1(24)

1,3-ジメチル-4-(3-ベンゾイルフェニルアミノ)ピラ
ゾロ[5,4-b]ピリジン-5-カルボキサミド

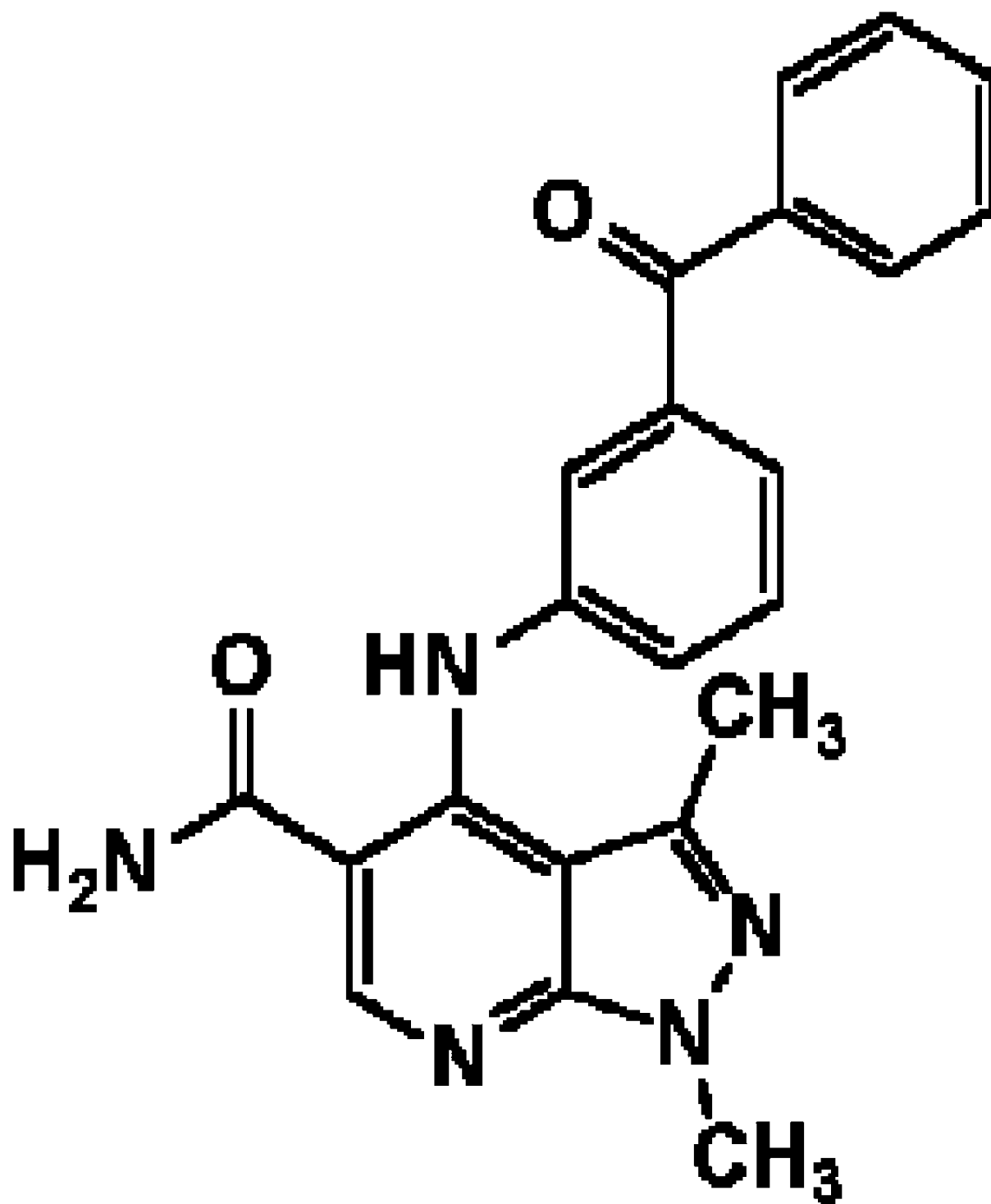
【化 44】

[0124]

Working Example 1 (24)

1 and 3 -dimethyl -4- (3 -benzoyl phenylamino) pyrazolo [5
and 4 -b] pyridine -5-carboxamide

[Chemical Formula 44]



【0125】

TLC:Rf 0.30 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.94 (s, 1H), 8.75 (s, 1H), 8.22 (bs, 1H), 7.70-7.62 (m, 3H), 7.59 (bs, 1H), 7.54-7.40 (m, 5H), 7.36-7.31 (m,

[0125]

TLC:Rf 0.30 (ethylacetate);

nmr (DMSO - d_6) : δ 10.94 (s, 1H), 8.75 (s, 1H), 8.22 (bs, 1H), 7.70 - 7.62 (m, 3H), 7.59 (bs, 1H), 7.54-7.40 (m, 5H), 7.36 - 7.31 (m, 1H), 3.93 (s, 3H), 1.76 (s,

1H), 3.93(s, 3H), 1.76 (s, 3H)。

【0126】

実施例 1(25)

1,3-ジメチル-4-(3-メチルチオフェニルアミノ)ピラ
ゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 45】

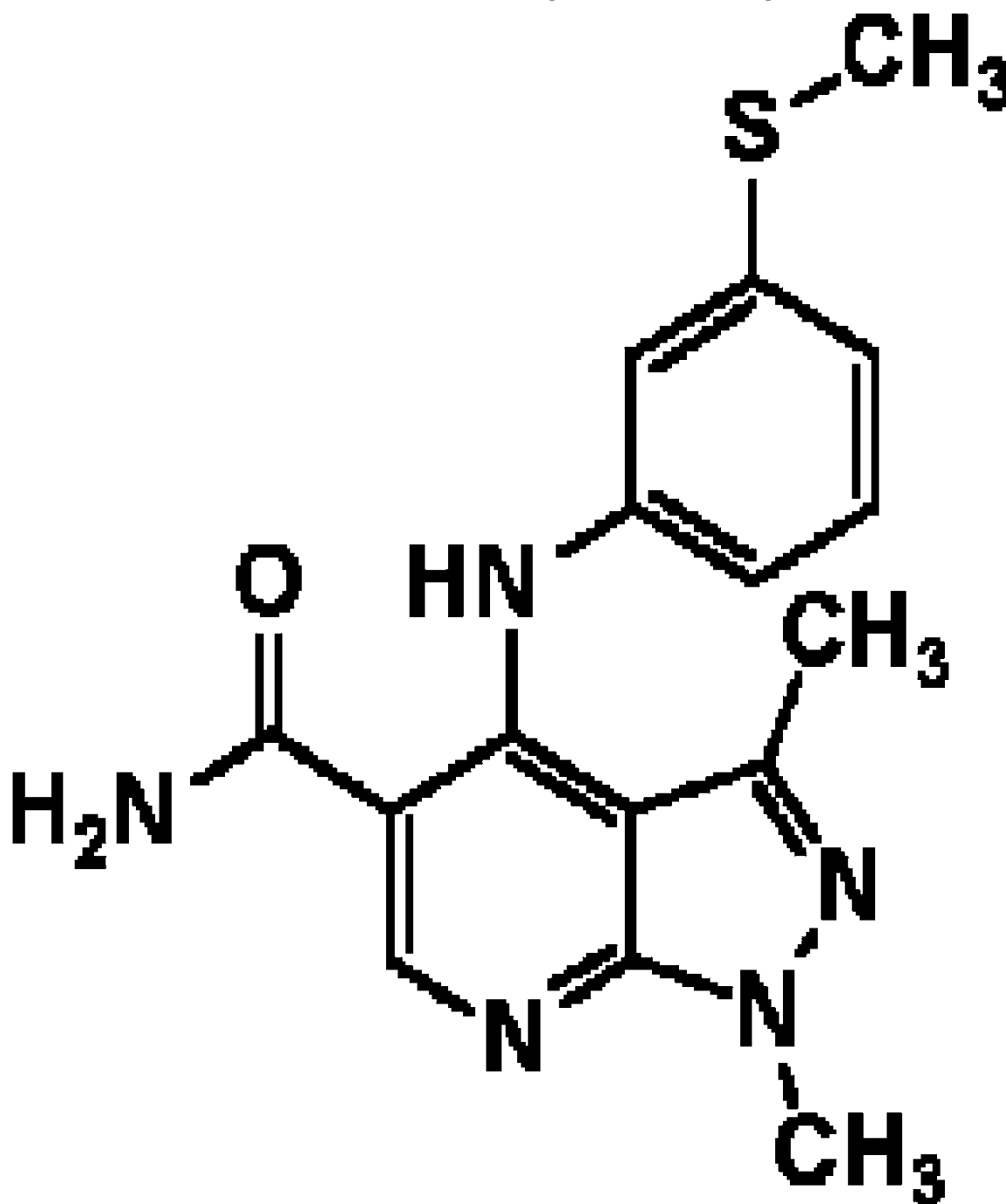
3H).

[0126]

Working Example 1 (25)

1 and 3 -dimethyl -4- (3 -methylthio phenylamino) pyrazolo
[5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 45]



【0127】

TLC:Rf 0.30 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.98 (s, 1H), 8.74 (s, 1H), 8.22 (bs, 1H), 7.56(bs, 1H), 7.23 (t, J = 8.1 Hz, 1H), 7.01 (s, 1H), 7.00 (d, J = 8.1 Hz, 1H), 6.84 (d, J = 8.1 Hz, 1H), 3.89 (s, 3H), 2.42 (s, 3H), 1.69 (s, 3H)。

【0128】

実施例 1(26)

1,3-ジメチル-4-(3-エチニルフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 46】

[0127]

TLC:Rf 0.30 (ethylacetate);

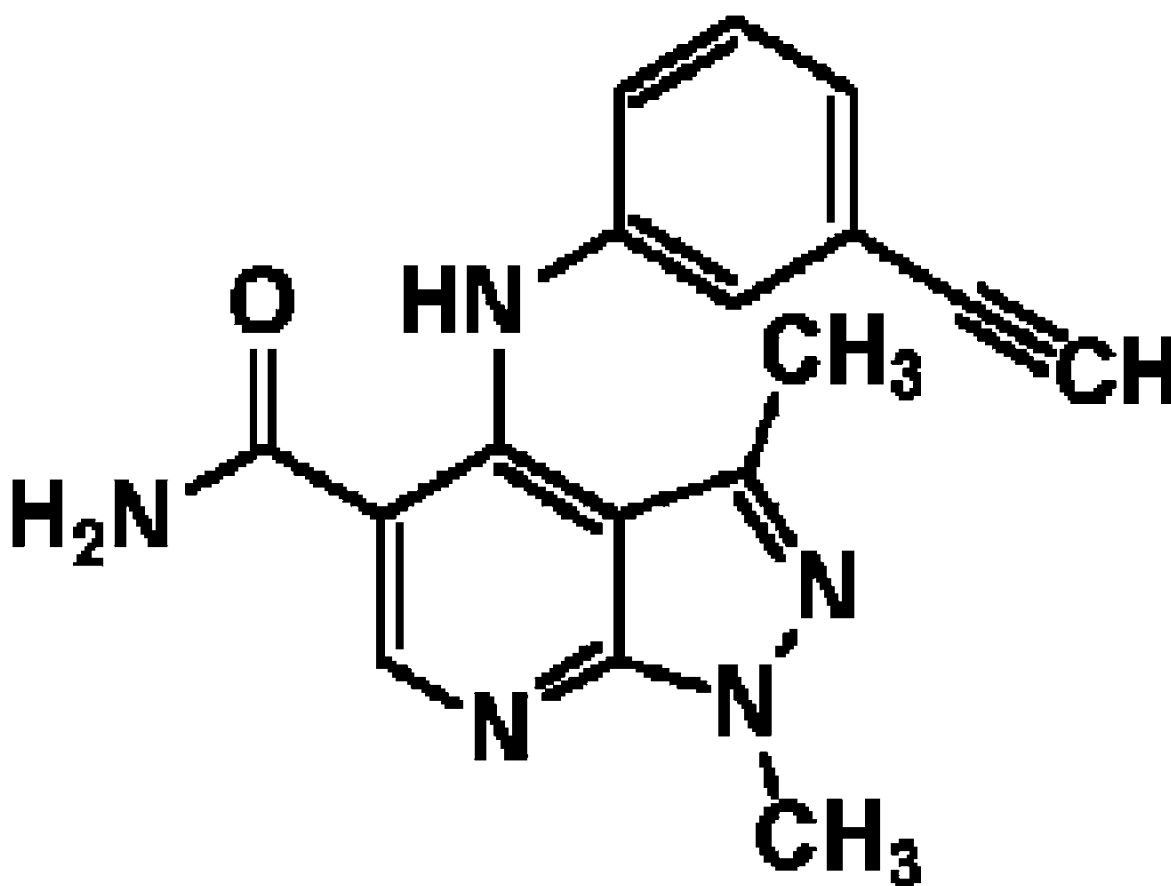
nmr (DMSO - d_6) : δ 10.98 (s, 1H), 8.74 (s, 1H), 8.22 (bs, 1H), 7.56 (bs, 1H), 7.23 (t, J=8.1Hz, 1H), 7.01 (s, 1H), 7.00 (d, J=8.1Hz, 1H), 6.84 (d, J=8.1Hz, 1H), 3.89 (s, 3H), 2.42 (s, 3H), 1.69 (s, 3H).

[0128]

Working Example 1 (26)

1 and 3 -dimethyl -4- (3 -ethynyl phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 46]



【0129】

TLC:Rf 0.22 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.91(s, 1H), 8.75(s, 1H), 8.25(s, 1H), 7.60(bs, 1H), 7.10-7.35(m, 4H), 4.17 (s, 1H), 3.89(s, 3H), 1.67(s, 3H)。

【0130】

[0129]

TLC:Rf 0.22 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 10.91 (s, 1H), 8.75 (s, 1H), 8.25 (s, 1H), 7.60 (bs, 1H), 7.10 - 7.35 (m, 4H), 4.17(s, 1H), 3.89 (s, 3H), 1.67 (s, 3H).

[0130]

実施例 1(27)

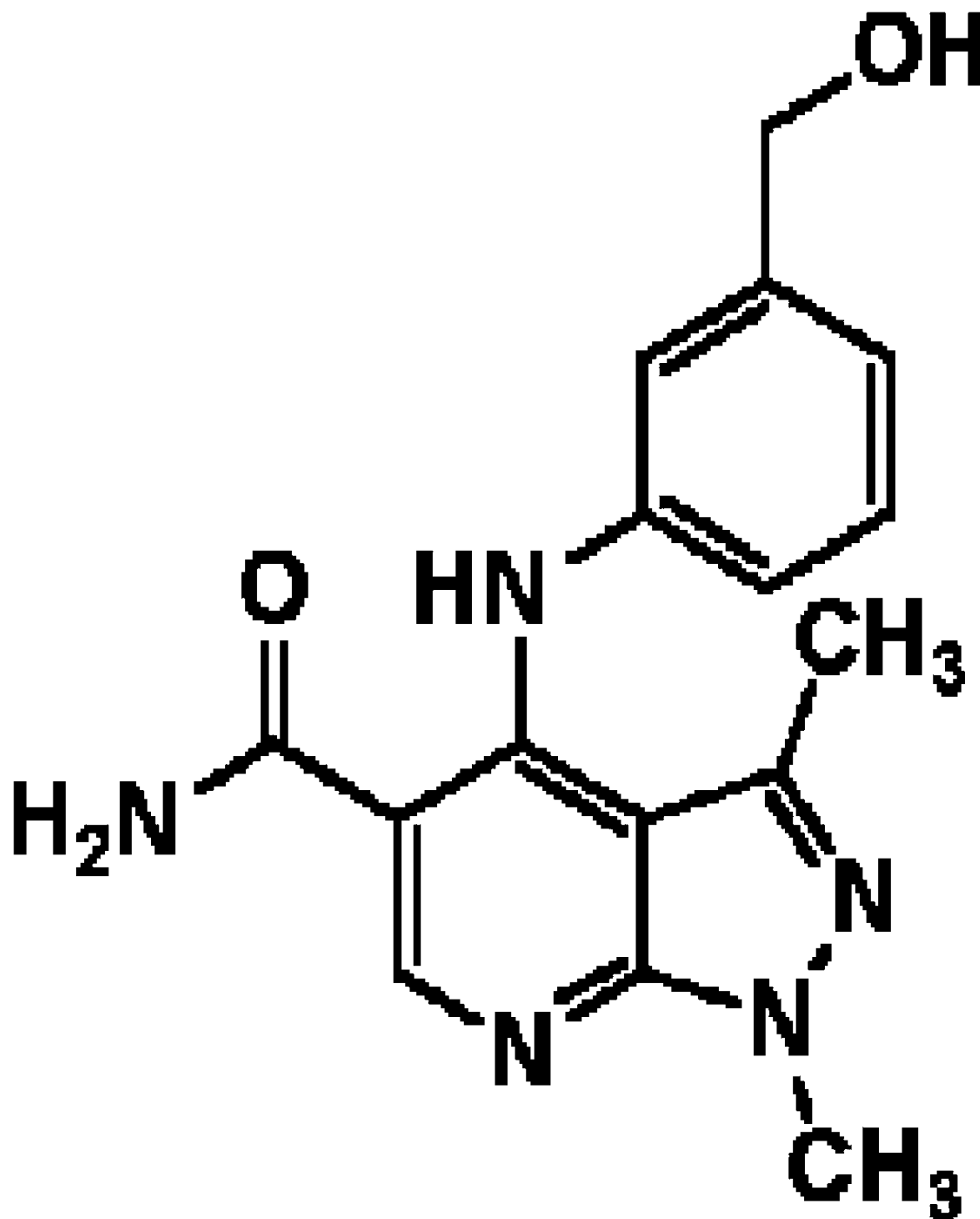
1,3-ジメチル-4-(3-ヒドロキシメチルフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 47】

Working Example 1 (27)

1 and 3 -dimethyl -4- (3 -hydroxymethyl phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 47]



【0131】

TLC:Rf 0.65 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 11.05 (s, 1H), 8.73 (s, 1H), 8.20 (br, 1H), 7.54(br, 1H), 7.26 (d, J = 8.0, 8.0 Hz, 1H), 7.08-7.03 (m, 2H), 6.96 (d, J= 8.0 Hz, 1H), 5.16 (t, J = 6.2 Hz, 1H), 4.42 (d, J = 6.2 Hz, 2H), 3.87(s, 3H), 1.61 (s, 3H)。

【0132】

実施例 1(28)

1,3-ジメチル-4-(3-アセチルアミノフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 48】

[0131]

TLC:Rf 0.65 (chloroform :methanol =9 : 1);

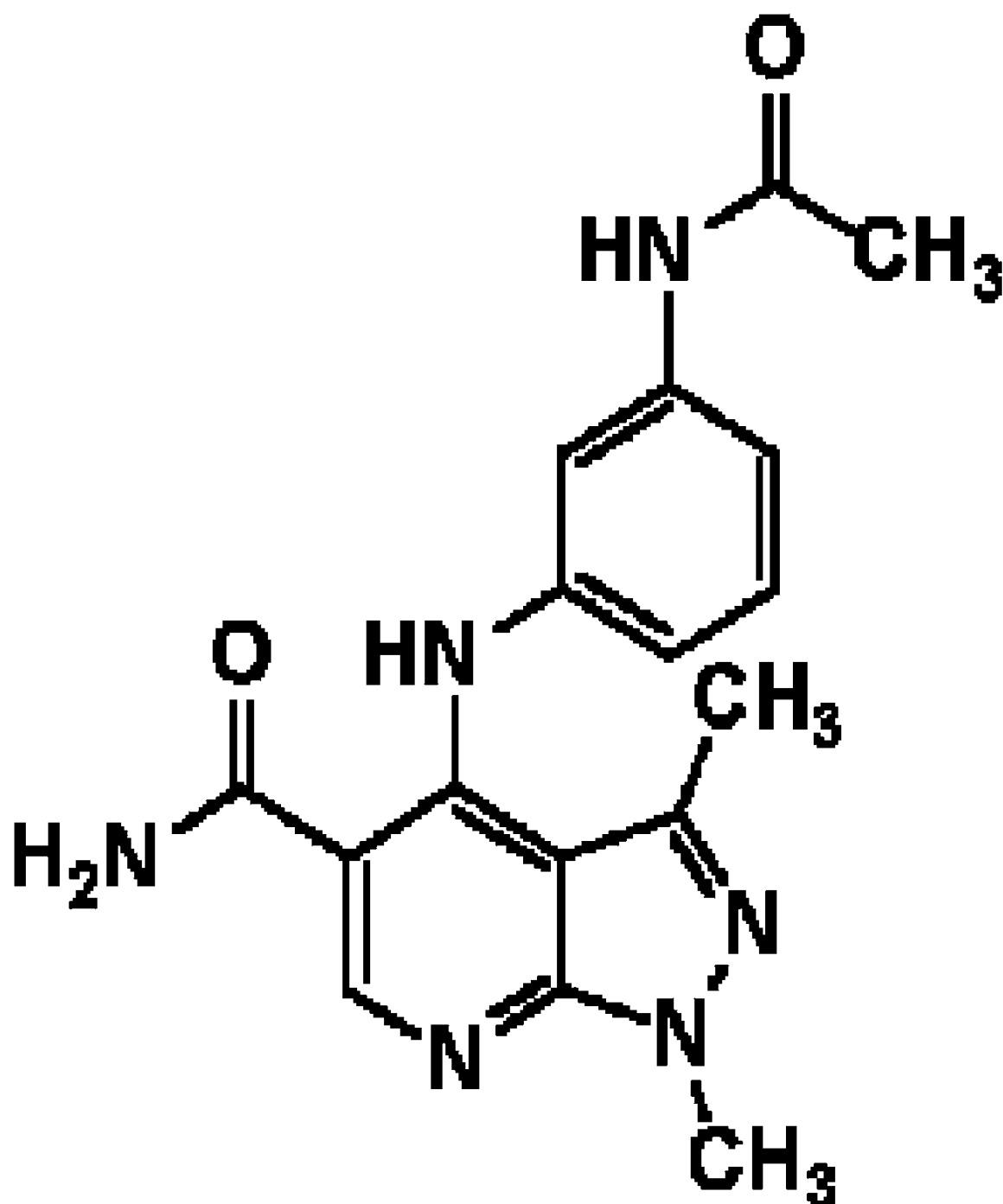
nmr (DMSO - d_6) : δ 11.05 (s, 1H), 8.73 (s, 1H), 8.20 (br, 1H), 7.54 (br, 1H), 7.26 (dd, J=8.0, 8.0Hz, 1H), 7.08 - 7.03(m, 2H), 6.96 (d, J=8.0Hz, 1H), 5.16 (t, J=6.2Hz, 1H), 4.42 (d, J=6.2Hz, 2H), 3.87 (s, 3H), 1.61 (s, 3H).

[0132]

Working Example 1 (28)

1 and 3 -dimethyl -4- (3 -acetylamino phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 48]



【0133】

TLC:Rf 0.20 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.99 (s, 1H), 9.88 (s, 1H), 8.73 (s, 1H), 8.22 (brs, 1H), 7.57 (brs, 1H), 7.35-7.32 (m, 2H), 7.22 (t, J = 8.1 Hz, 1H), 6.78 (d, J = 8.1 Hz, 1H), 3.87 (s, 3H), 1.97 (s, 3H), 1.66 (s, 3H)。

[0133]

TLC:Rf 0.20 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6): δ 10.99 (s, 1H), 9.88 (s, 1H), 8.73 (s, 1H), 8.22 (brs, 1H), 7.57 (brs, 1H), 7.35 - 7.32(m, 2H), 7.22 (t, J=8.1Hz, 1H), 6.78 (d, J=8.1Hz, 1H), 3.87 (s, 3H), 1.97 (s, 3H), 1.66 (s, 3H).

【0134】

実施例 1(29)

1,3-ジメチル-4-(3-ブチルスルファモイルフェニル
アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

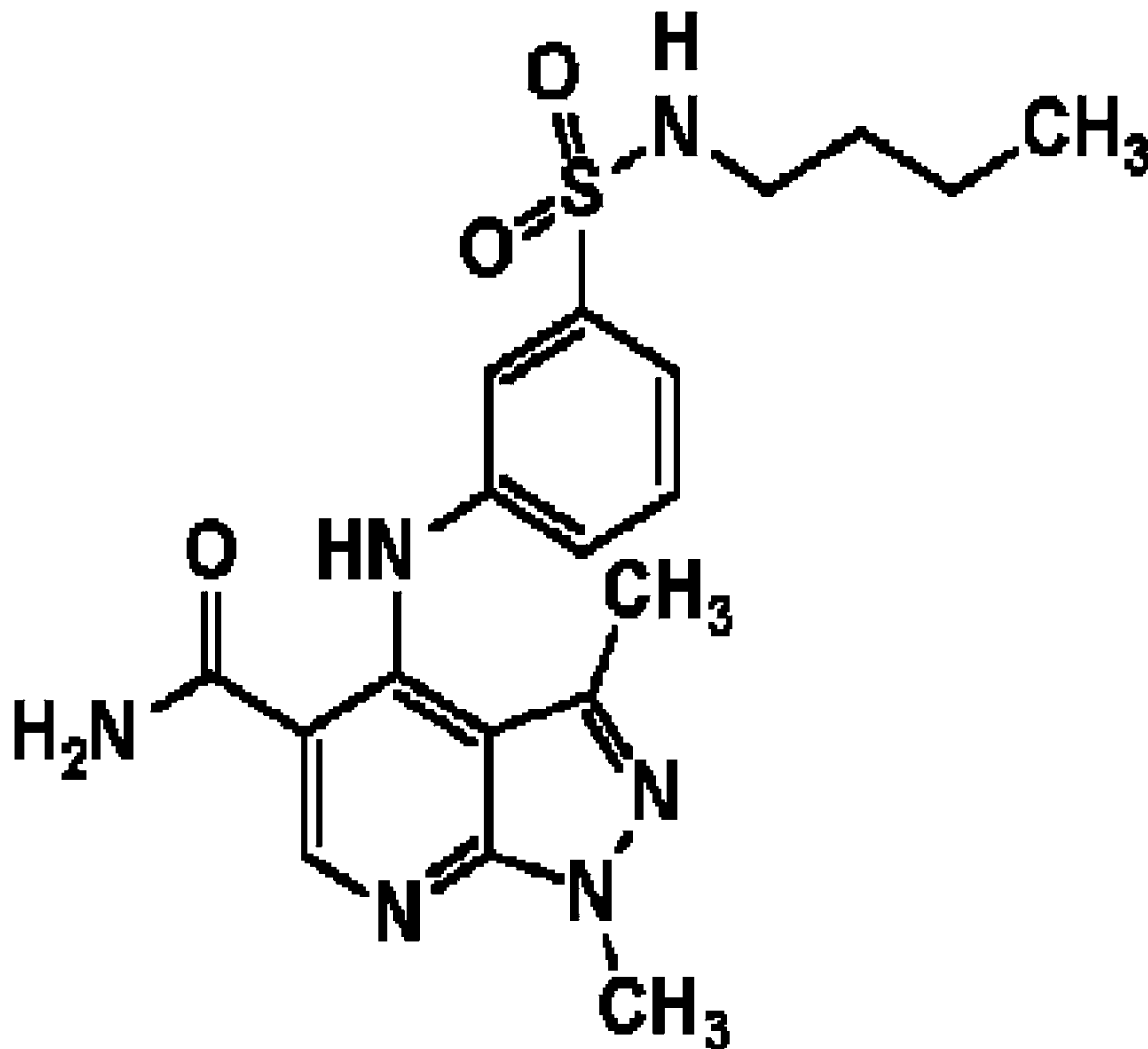
【化 49】

[0134]

Working Example 1 (29)

1 and 3 -dimethyl -4- (3 -butyl sulfamoyl phenylamino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 49]



【0135】

TLC:Rf 0.25 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 11.14 (s, 1H), 8.80 (s, 1H), 8.35 (brs, 1H), 7.67 (brs, 1H), 7.57 (brs, 1H), 7.60-7.37 (m, 4H), 3.91 (s, 3H), 2.63 (q, J= 7.2 Hz, 2H), 1.65 (s, 3H), 1.35-1.15 (m, 4H), 0.78 (t, J = 7.2 Hz, 3H)。

【0136】

実施例 1(30)

[0135]

TLC:Rf 0.25 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 11.14 (s, 1H), 8.80 (s, 1H), 8.35 (brs, 1H), 7.67 (brs, 1H), 7.57 (brs, 1H), 7.60 - 7.37 (m, 4H), 3.91 (s, 3H), 2.63 (q, J=7.2Hz, 2H), 1.65 (s, 3H), 1.35 - 1.15 (m, 4H), 0.78 (t, J=7.2Hz, 3H)。

[0136]

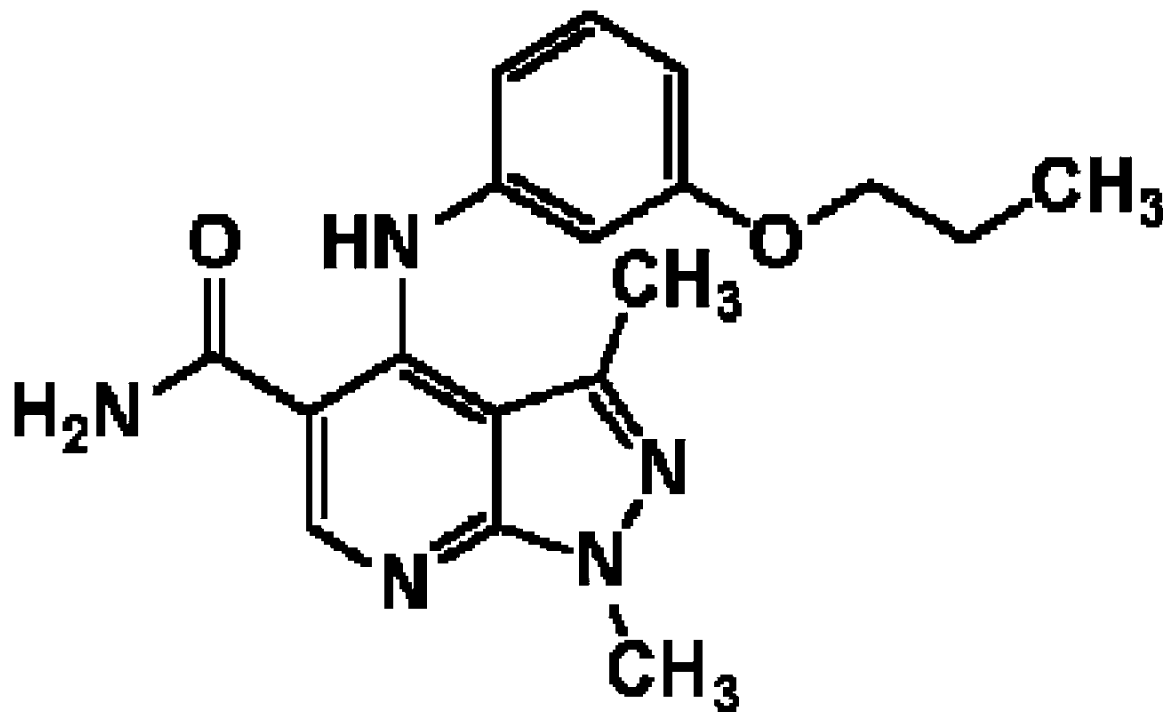
Working Example 1 (30)

1,3-ジメチル-4-(3-プロポキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

1 and 3 -dimethyl -4- (3 -propoxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

【化 50】

[Chemical Formula 50]



【0137】

TLC:Rf 0.36 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.96 (s, 1H), 8.74 (s, 1H), 8.20 (bs, 1H), 7.55(bs, 1H), 7.19 (t, J = 8.4 Hz, 1H), 6.74-6.68 (m, 1H), 6.67 (s, 1H), 6.63 (d, J = 8.4 Hz, 1H), 3.89 (s, 3H), 3.87 (t, J = 6.9 Hz, 2H), 1.69 (s, 3H), 1.68 (sext, J= 6.9 Hz, 2H), 0.94 (t, J = 6.9 Hz, 3H)。

【0138】

実施例 1(31)

1,3-ジメチル-4-(3-シクロペンチルオキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 51】

[0137]

TLC:Rf 0.36 (ethylacetate);

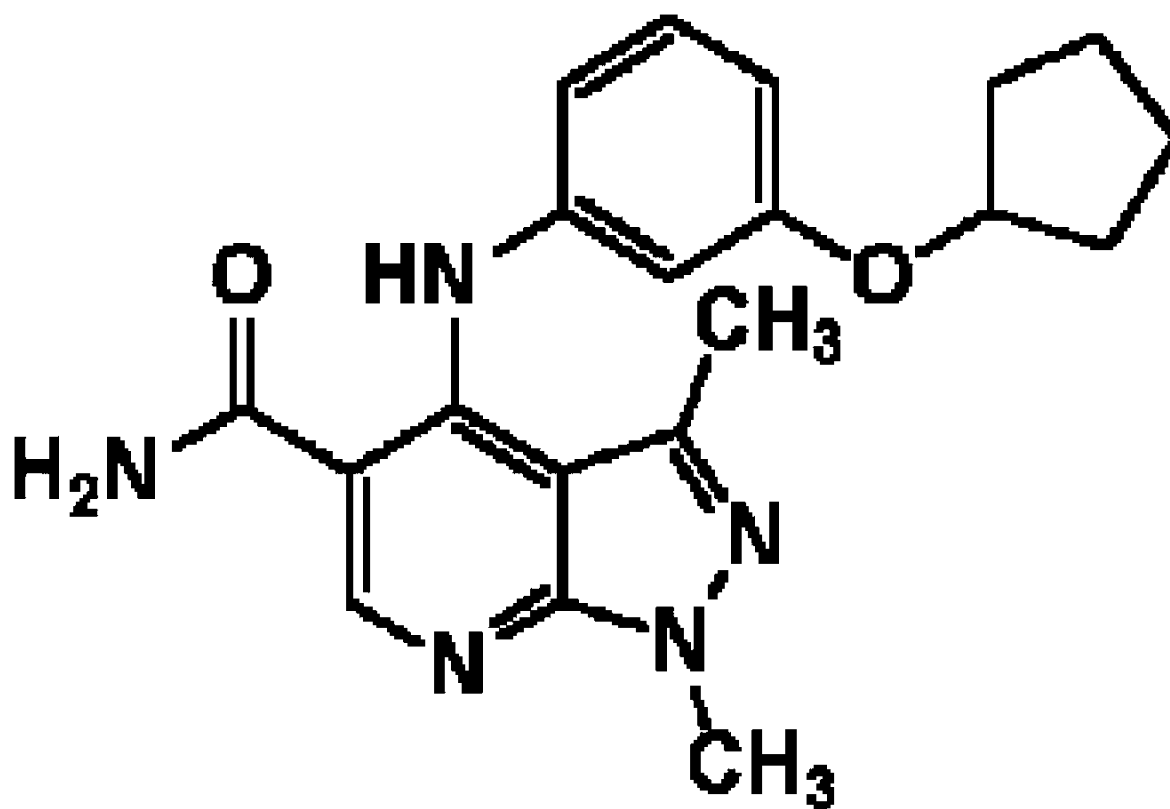
nmr (DMSO - d_6) : δ 10.96 (s, 1H), 8.74 (s, 1H), 8.20 (bs, 1H), 7.55 (bs, 1H), 7.19 (t, J=8.4Hz, 1H), 6.74 - 6.68(m, 1H), 6.67 (s, 1H), 6.63 (d, J=8.4Hz, 1H), 3.89 (s, 3H), 3.87 (t, J=6.9Hz, 2H), 1.69 (s, 3H), 1.68 (sext, J=6.9Hz, 2H), 0.94 (t, J=6.9Hz, 3H).

[0138]

Working Example 1 (31)

1 and 3 -dimethyl -4- (3 -cyclopentyl oxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 51]



【0139】

TLC:Rf 0.35 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.98 (s, 1H), 8.74 (s, 1H), 8.21 (bs, 1H), 7.56(bs, 1H), 7.19 (t, J = 8.4 Hz, 1H), 6.70-6.60 (m, 3H), 4.80-4.72 (m, 1H), 3.89 (s, 3H), 1.90-1.46 (m, 8H), 1.68 (s, 3H)。

【0140】

実施例 1(32)

1,3-ジメチル-4-(3-シクロヘキシルオキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 52】

[0139]

TLC:Rf 0.35 (ethylacetate);

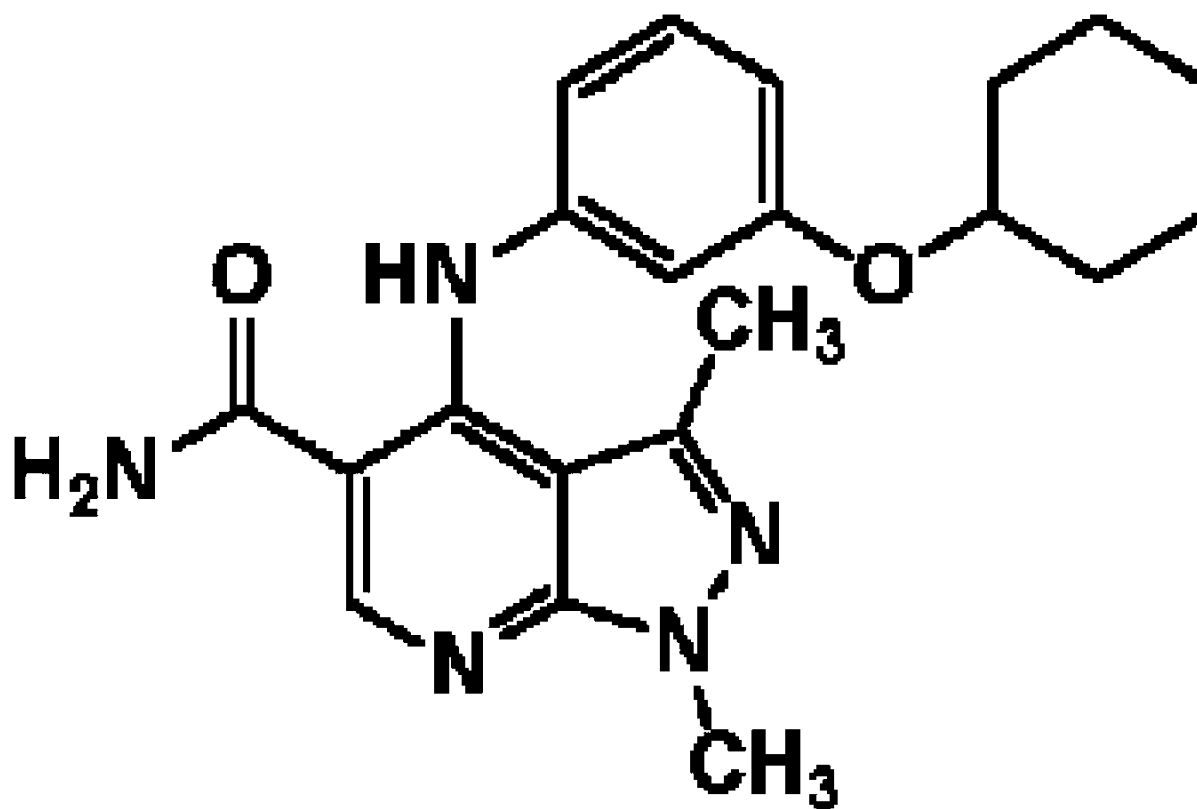
nmr (DMSO - d_6) : δ 10.98 (s, 1H), 8.74 (s, 1H), 8.21 (bs, 1H), 7.56 (bs, 1H), 7.19 (t, J=8.4Hz , 1H), 6.70 - 6.60(m, 3H), 4.80 - 4.72 (m, 1H), 3.89 (s, 3H), 1.90 - 1.46 (m, 8H), 1.68 (s, 3H).

[0140]

Working Example 1 (32)

1 and 3 -dimethyl -4- (3 -cyclohexyloxy group phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 52]



【0141】

TLC:Rf 0.52 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.05 (br, 1H), 8.74 (s, 1H), 8.23 (br, 1H), 7.58 (br, 1H), 7.18 (d, J = 8.1, 8.1 Hz, 1H), 6.73-6.61 (m, 3H), 4.32-4.23 (m, 1H), 3.88 (s, 3H), 1.90-1.81 (m, 2H), 1.72-1.59 (m, 1H), 1.66 (s, 3H), 1.54-1.43 (m, 1H), 1.43-1.13 (m, 6H).

【0142】

実施例 1(33)

1,3-ジメチル-4-(3-(2H-3,4,5,6-テトラヒドロピラン-4-イル)オキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 53】

[0141]

TLC:Rf 0.52 (ethylacetate);

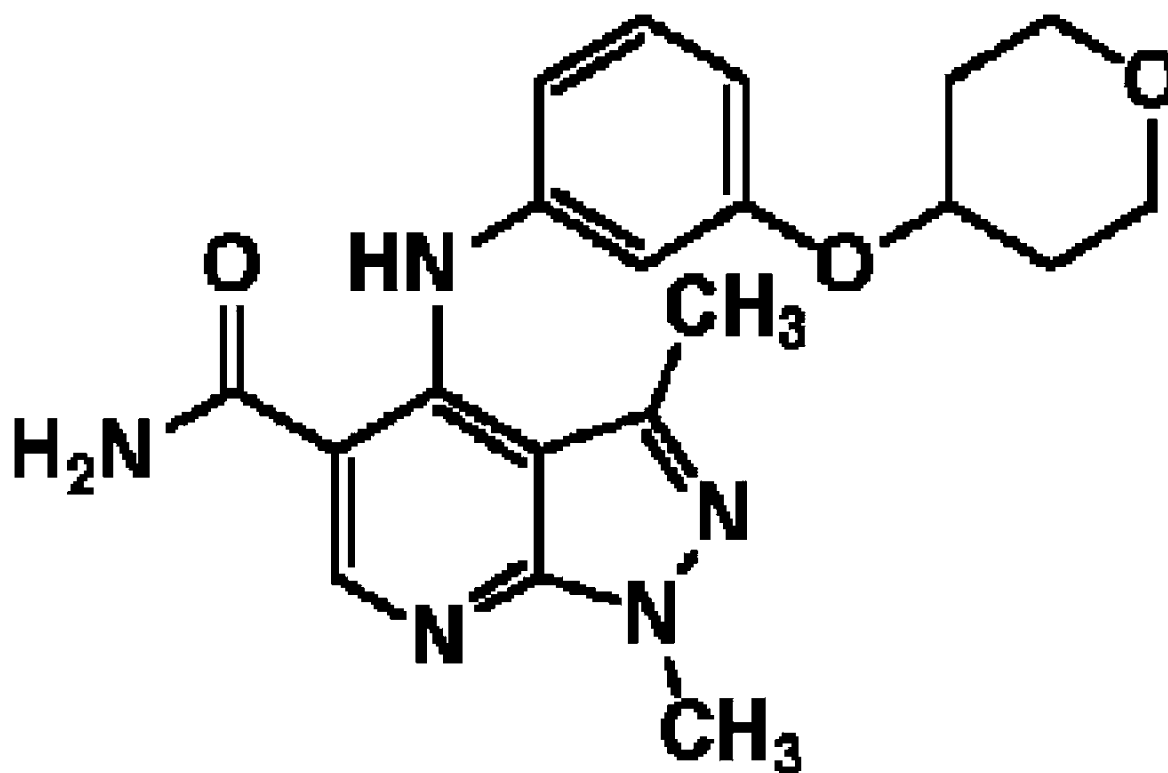
nmr (DMSO - d_6) : δ 11.05 (br, 1H), 8.74 (s, 1H), 8.23 (br, 1H), 7.58 (br, 1H), 7.18 (dd, J=8.1, 8.1Hz, 1H), 6.73 - 6.61 (m, 3H), 4.32 - 4.23 (m, 1H), 3.88 (s, 3H), 1.90 - 1.81 (m, 2H), 1.72 - 1.59 (m, 1H), 1.66 (s, 3H), 1.54 - 1.43 (m, 1H), 1.43 - 1.13 (m, 6H).

[0142]

Working Example 1 (33)

1 and 3 -dimethyl -4- (3 - (2 H-3, 4, 5, 6-tetrahydropyran -4-yl) oxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 53]



【0143】

TLC:Rf 0.40 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.11 (br, 1H), 8.75 (s, 1H), 8.25 (br, 1H), 7.60(br, 1H), 7.23-7.17 (m, 1H), 6.78-6.75 (m, 2H), 6.66 (d, J = 7.8 Hz, 1H), 4.58-4.48 (m, 1H), 3.89 (s, 3H), 3.84-3.76 (m, 2H), 3.47-3.38 (m, 2H), 1.95-1.85 (m, 2H), 1.65 (s, 3H), 1.58-1.45 (m, 2H).

【0144】

実施例 1(34)

1,3-ジメチル-4-(3-(オキソラン-3-イル)オキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 54】

[0143]

TLC:Rf 0.40 (ethylacetate);

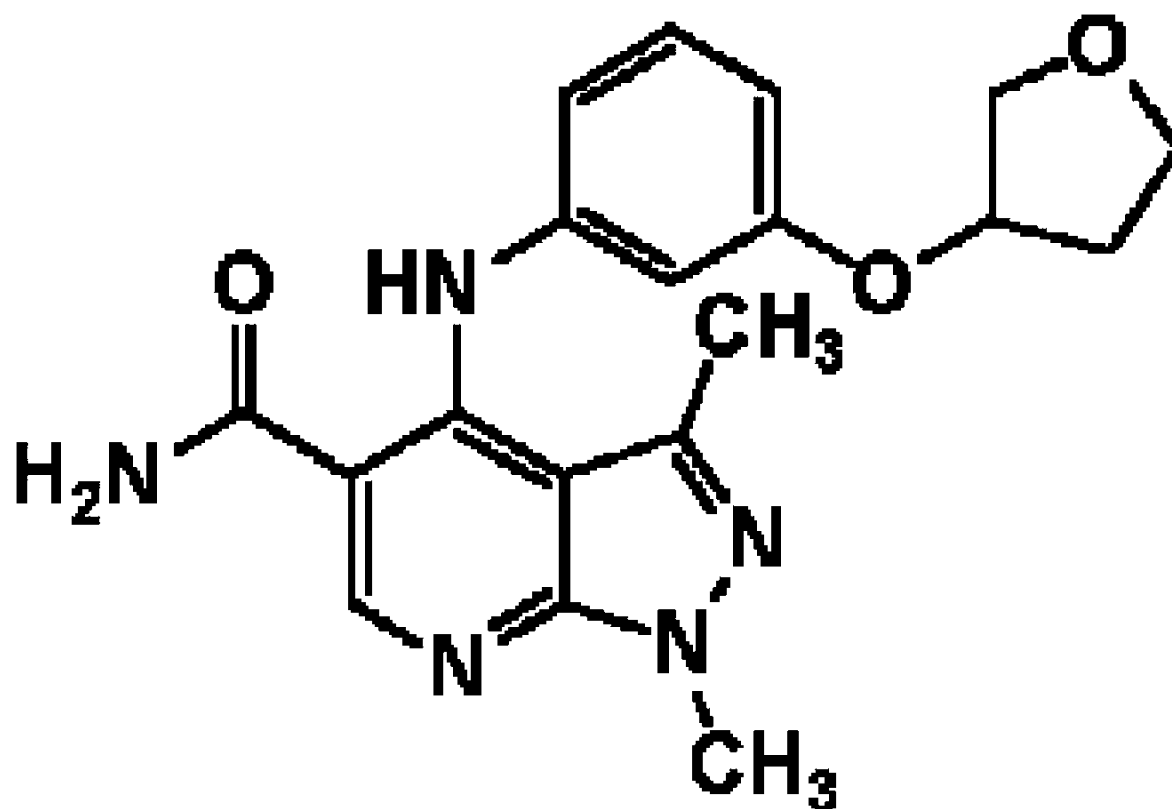
nmr (DMSO - d_6) : δ 11.11 (br, 1H), 8.75 (s, 1H), 8.25 (br, 1H), 7.60 (br, 1H), 7.23 - 7.17 (m, 1H), 6.78-6.75 (m, 2H), 6.66 (d, J=7.8Hz, 1H), 4.58 - 4.48 (m, 1H), 3.89 (s, 3H), 3.84 - 3.76 (m, 2H), 3.47 -3.38 (m, 2H), 1.95 - 1.85 (m, 2H), 1.65 (s, 3H), 1.58 - 1.45 (m, 2H).

[0144]

Working Example 1 (34)

1 and 3 -dimethyl -4- (3 - (oxolane -3- yl) oxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 54]



【0145】

TLC:Rf 0.32 (酢酸エチル);

NMR (CDCl₃) : δ 10.59 (s, 1H), 8.53 (s, 1H), 7.23-7.15 (m, 1H), 6.77-6.71 (m, 1H), 6.67-6.61 (m, 2H), 5.83 (bs, 2H), 4.90-4.82 (m, 1H), 3.99 (s, 3H), 3.98-3.83 (m, 4H), 2.23-2.04 (m, 2H), 1.77 (s, 3H)。

【0146】

実施例 1(35)

1,3-ジメチル-4-(3-(メチルスルホニルアミノ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 55】

[0145]

TLC:Rf 0.32 (ethylacetate);

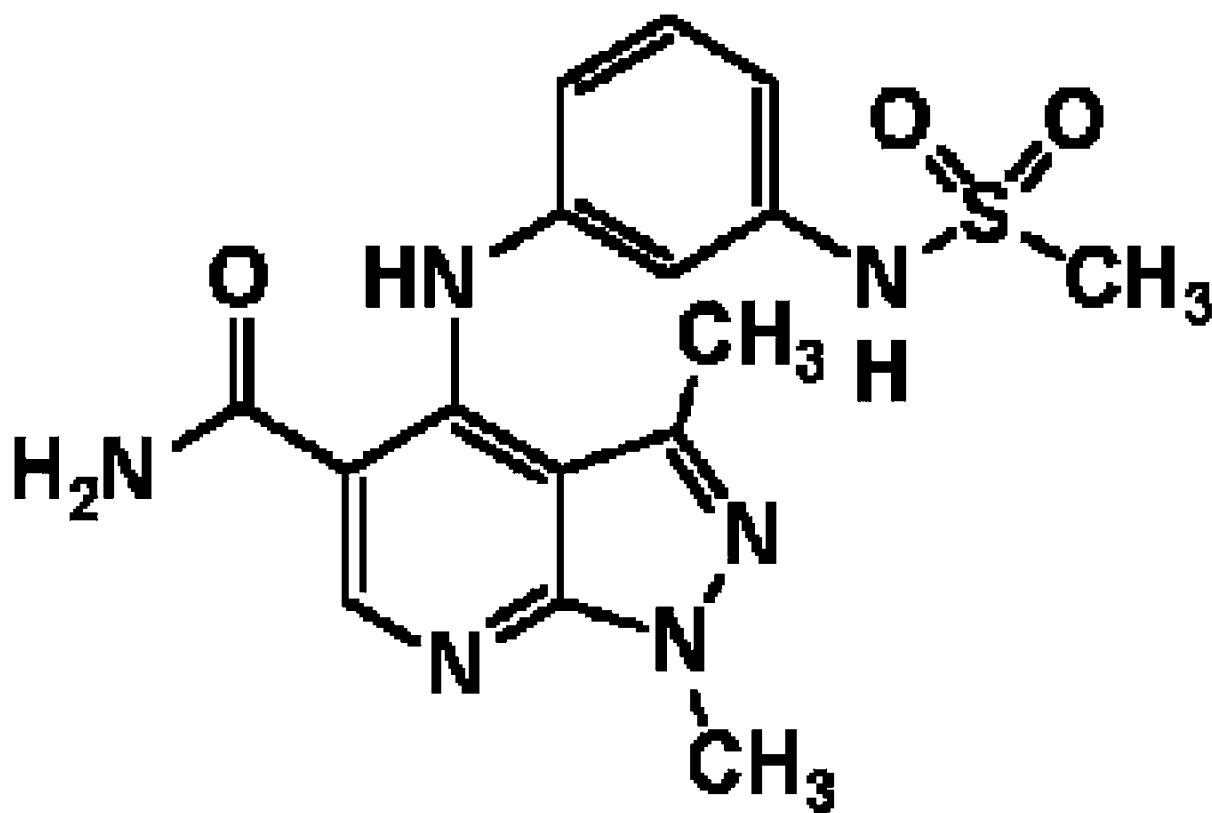
nmr (CDCl₃): δ 10.59 (s, 1H), 8.53 (s, 1H), 7.23 - 7.15 (m, 1H), 6.77 - 6.71 (m, 1H), 6.67 - 6.61 (m, 2H), 5.83 (bs, 2H), 4.90 - 4.82 (m, 1H), 3.99 (s, 3H), 3.98 - 3.83 (m, 4H), 2.23 - 2.04 (m, 2H), 1.77 (s, 3H).

[0146]

Working Example 1 (35)

1 and 3 -dimethyl -4- (3 - (methyl sulfonyl amino) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 55]



【0147】

TLC:Rf 0.30 (塩化メチレン:メタノール=10:1);

NMR (DMSO- d_6) : δ 10.96 (s, 1H), 9.72 (s, 1H), 8.75 (s, 1H), 8.23 (bs, 1H), 7.59 (b s, 1H), 7.27 (t, J = 8.1 Hz, 1H), 7.00-6.92 (m, 2H), 6.87-6.81 (m, 1H), 3.89 (s, 3H), 2.94 (s, 3H), 1.70 (s, 3H).

【0148】

実施例 1(36)

1-メチル-3-エチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 56】

[0147]

TLC:Rf 0.30 (methylene chloride :methanol =10:1);

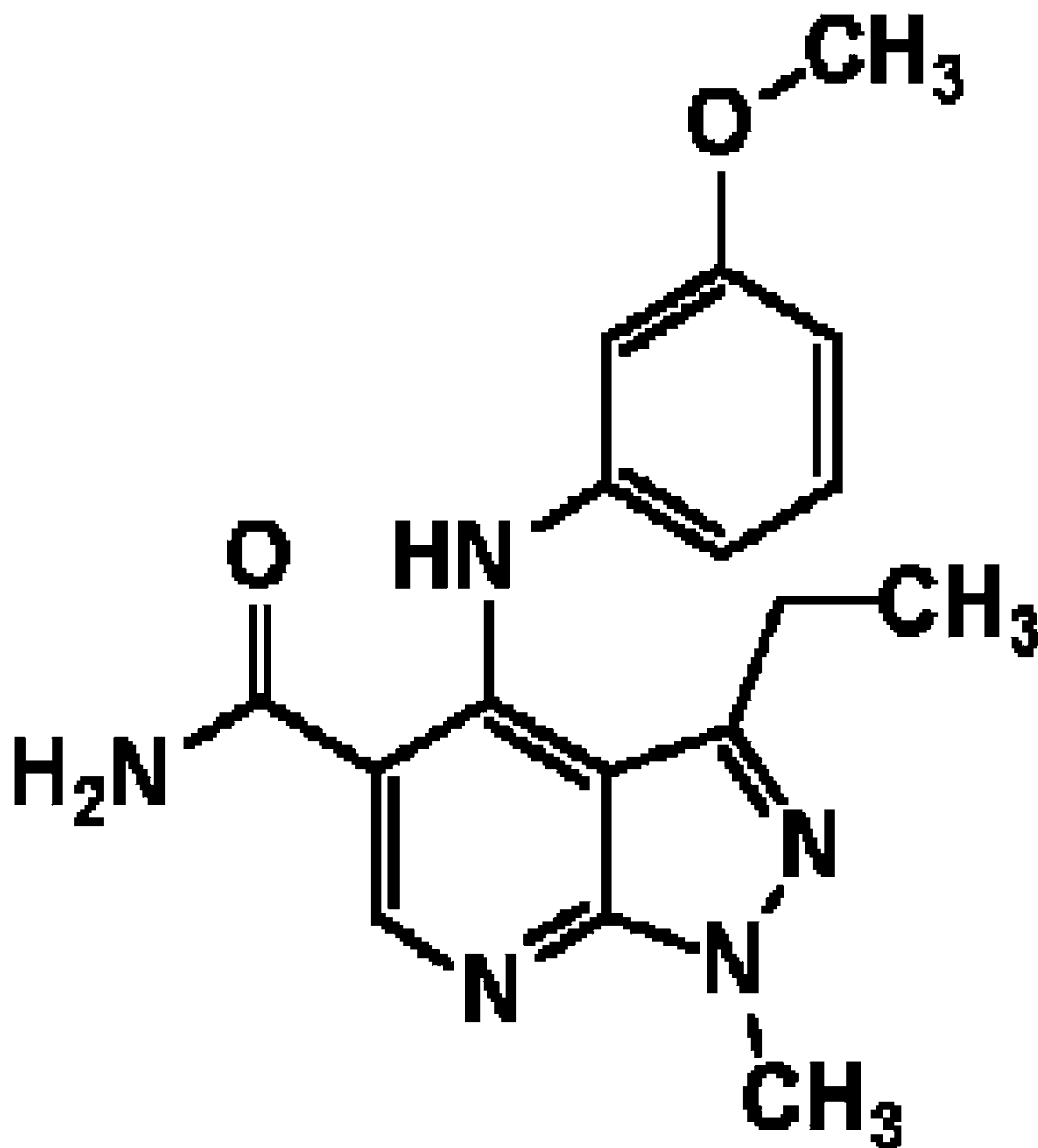
nmr (DMSO - d_6) : δ 10.96 (s, 1H), 9.72 (s, 1H), 8.75 (s, 1H), 8.23 (bs, 1H), 7.59 (bs, 1H), 7.27 (t, J=8.1Hz, 1H), 7.00 - 6.92 (m, 2H), 6.87 - 6.81 (m, 1H), 3.89 (s, 3H), 2.94 (s, 3H), 1.70 (s, 3H).

[0148]

Working Example 1 (36)

1 -methyl -3- ethyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 56]



【0149】

TLC:Rf 0.59 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.87 (s, 1H), 8.74 (s, 1H), 8.21 (br.s, 1H), 7.56 (br.s, 1H), 7.17 (t, J = 8.1 Hz, 1H), 6.70-6.60 (m, 2H), 6.58 (m, 1H), 3.90 (s, 3H), 3.68 (s, 3H), 1.98 (q, J = 7.2 Hz, 2H), 0.93 (t, J = 7.2Hz, 3H).

【0150】

[0149]

TLC:Rf 0.59 (ethylacetate);

nmr (DMSO - d_6): δ 10.87 (s, 1H), 8.74 (s, 1H), 8.21 (br.s, 1H), 7.56 (br.s, 1H), 7.17 (t, J=8.1Hz, 1H), 6.70 - 6.60(m, 2H), 6.58 (m, 1H), 3.90 (s, 3H), 3.68 (s, 3H), 1.98 (q, J=7.2Hz, 2H), 0.93 (t, J=7.2Hz, 3H).

[0150]

実施例 1(37)

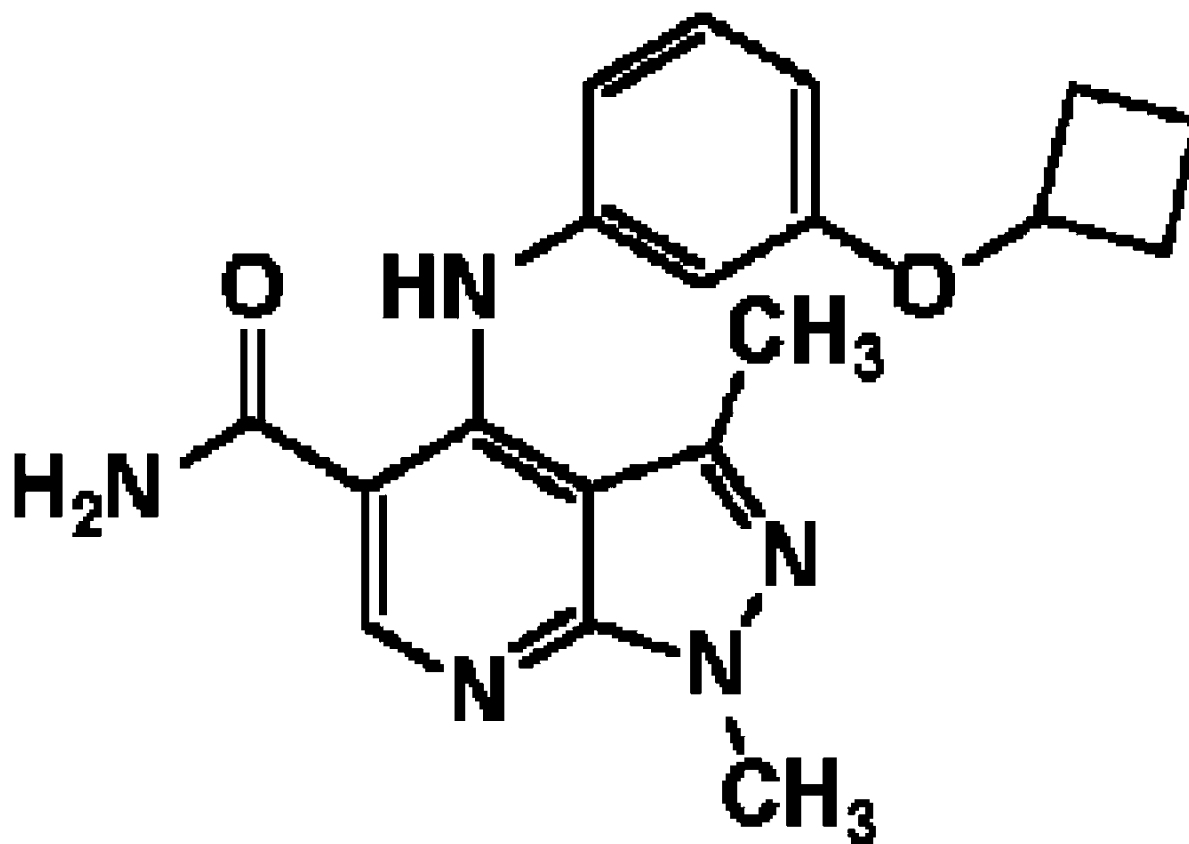
1,3-ジメチル-4-(3-シクロブチルオキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 57】

Working Example 1 (37)

1 and 3 -dimethyl -4- (3 -cyclobutyl oxy phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 57]



【0151】

TLC:Rf 0.50 (トルエン:酢酸エチル=1:20);

NMR (DMSO- d_6) : δ 11.08 (br, 1H), 8.74 (s, 1H), 8.25 (br, 1H), 7.60(br, 1H), 7.19 (d, J = 8.0, 8.0 Hz, 1H), 6.68-6.56 (m, 3H), 4.61 (quintet, J = 7.1 Hz, 1H), 3.88 (s, 3H), 2.35-2.23 (m, 2H), 2.03-1.85 (m, 2H), 1.79-1.64 (m, 1H), 1.89 (s, 3H), 1.64-1.49 (m, 1H).

【0152】

実施例 1(38)

1,3-ジメチル-4-(3-((3S)-1-メトキシカルボニルピロリジン-3-イルオキシ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 58】

[0151]

TLC:Rf 0.50 (toluene :ethylacetate =1:20);

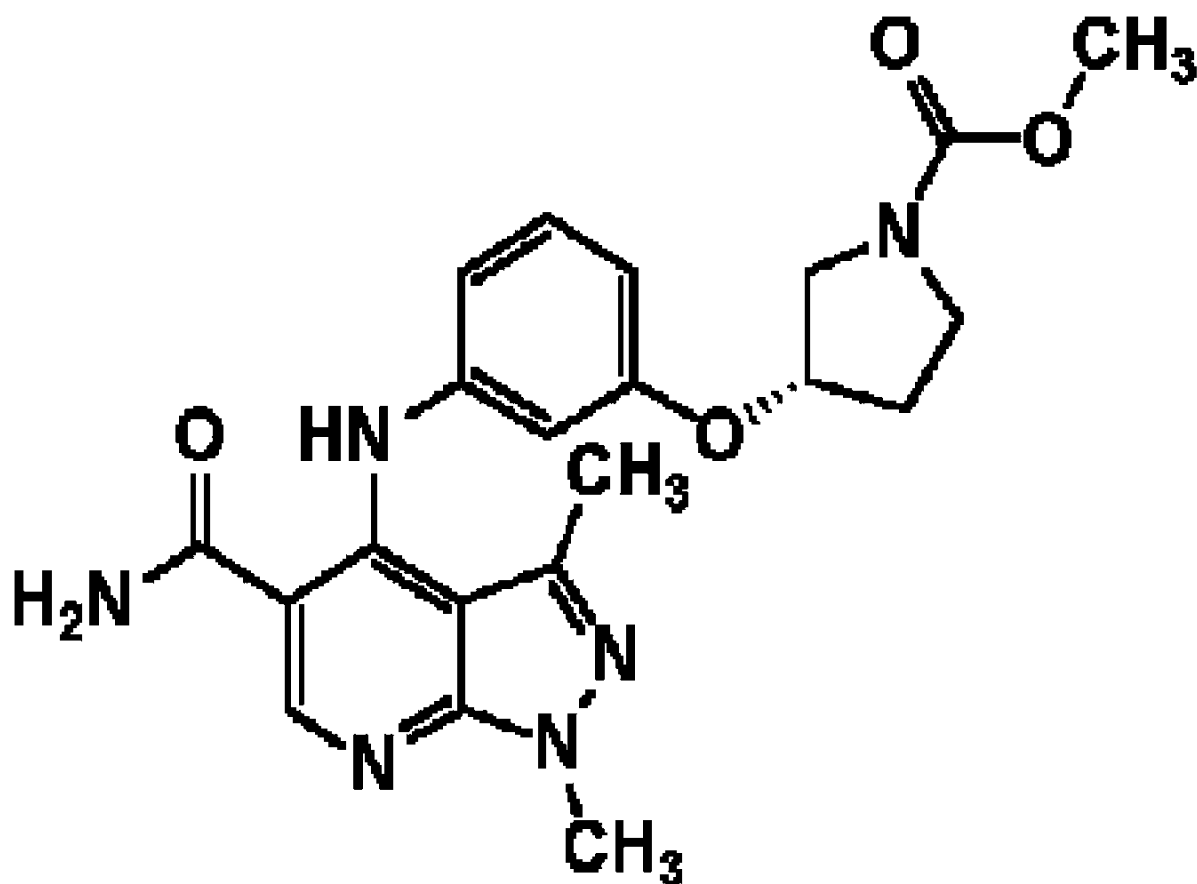
nmr (DMSO - d_6) : δ 11.08 (br, 1H), 8.74 (s, 1H), 8.25 (br, 1H), 7.60 (br, 1H), 7.19 (dd, J=8.0, 8.0Hz, 1H), 6.68 - 6.56(m, 3H), 4.61 (quintet, J=7.1Hz, 1H), 3.88 (s, 3H), 2.35 - 2.23 (m, 2H), 2.03 - 1.85 (m, 2H), 1.79 - 1.64 (m, 1H), 1.89 (s, 3H), 1.64 - 1.49 (m, 1H).

[0152]

Working Example 1 (38)

1 and 3 -dimethyl -4- (3 - (3 S) - 1 -methoxycarbonyl pyrrolidine -3- yloxy) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 58]



【0153】

TLC:Rf 0.55 (酢酸エチル:メタノール=10:1);

NMR (DMSO- d_6) : δ 10.93 (br, 1H), 8.73 (s, 1H), 8.19 (br, 1H), 7.55 (br, 1H), 7.20 (d, J = 8.4, 8.4 Hz, 1H), 6.72-6.63 (m, 3H), 4.99 (m, 1H), 3.87 (s, 3H), 3.57 & 3.56 (s, 3H), 3.53-3.27 (m, 4H), 2.18-1.95 (m, 2H), 1.68 (s, 3H).

【0154】

実施例 1(39)

1,3-ジメチル-4-(3-ヒドロキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 59】

[0153]

TLC:Rf 0.55 (ethylacetate :methanol =10:1);

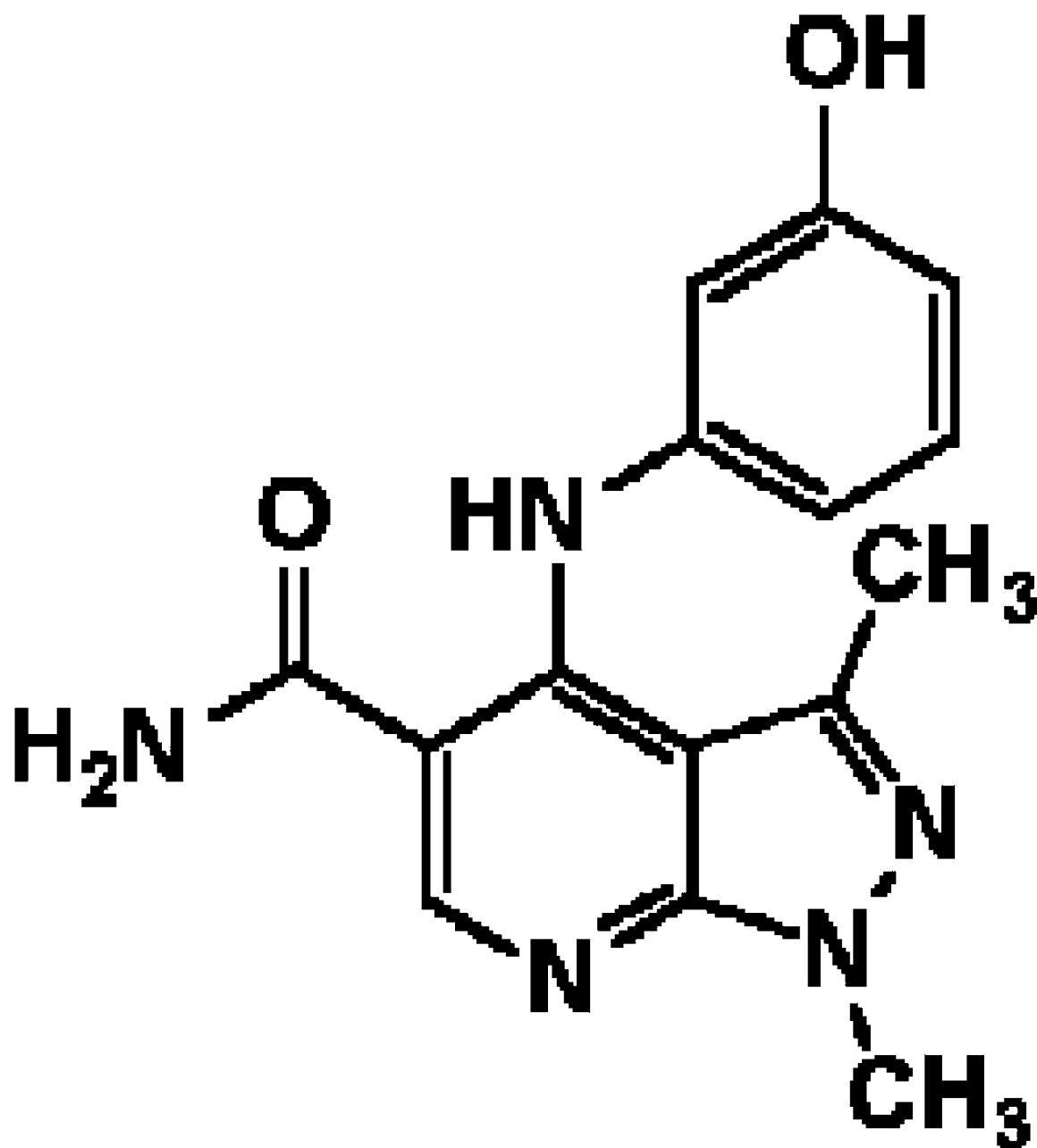
nmr (DMSO - d_6); δ 10.93 (br, 1H), 8.73 (s, 1H), 8.19 (br, 1H), 7.55 (br, 1H), 7.20 (dd, J=8.4, 8.4Hz, 1H), 6.72 - 6.63(m, 3H), 4.99 (m, 1H), 3.87 (s, 3H), 3.57 & 3.56 (s, 3H), 3.53 - 3.27 (m, 4H), 2.18 - 1.95 (m, 2H), 1.68 (s, 3H).

[0154]

Working Example 1 (39)

1 and 3 -dimethyl -4- (3 -hydroxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 59]



【0155】

TLC:Rf 0.27 (クロロホルム:メタノール=10:1);

NMR (DMSO- d_6) : δ 10.91 (s, 1H), 9.43 (s, 1H), 8.72 (s, 1H), 8.20 (br.s, 1H), 7.54 (br.s, 1H), 7.09 (t, J = 7.8 Hz, 1H), 6.55-6.45 (m, 3H), 3.87 (s, 3H), 1.70 (s, 3H)。

【0156】

実施例 1(40)

1-(4-メチルフェニル)-3-メチル-4-(3-メトキシフェ

[0155]

TLC:Rf 0.27 (chloroform :methanol =10:1);

nmr (DMSO - d_6) : δ 10.91 (s, 1H), 9.43 (s, 1H), 8.72 (s, 1H), 8.20 (br.s, 1H), 7.54 (br.s, 1H), 7.09 (t, J=7.8Hz, 1H), 6.55 - 6.45 (m, 3H), 3.87 (s, 3H), 1.70 (s, 3H).

[0156]

Working Example 1 (40)

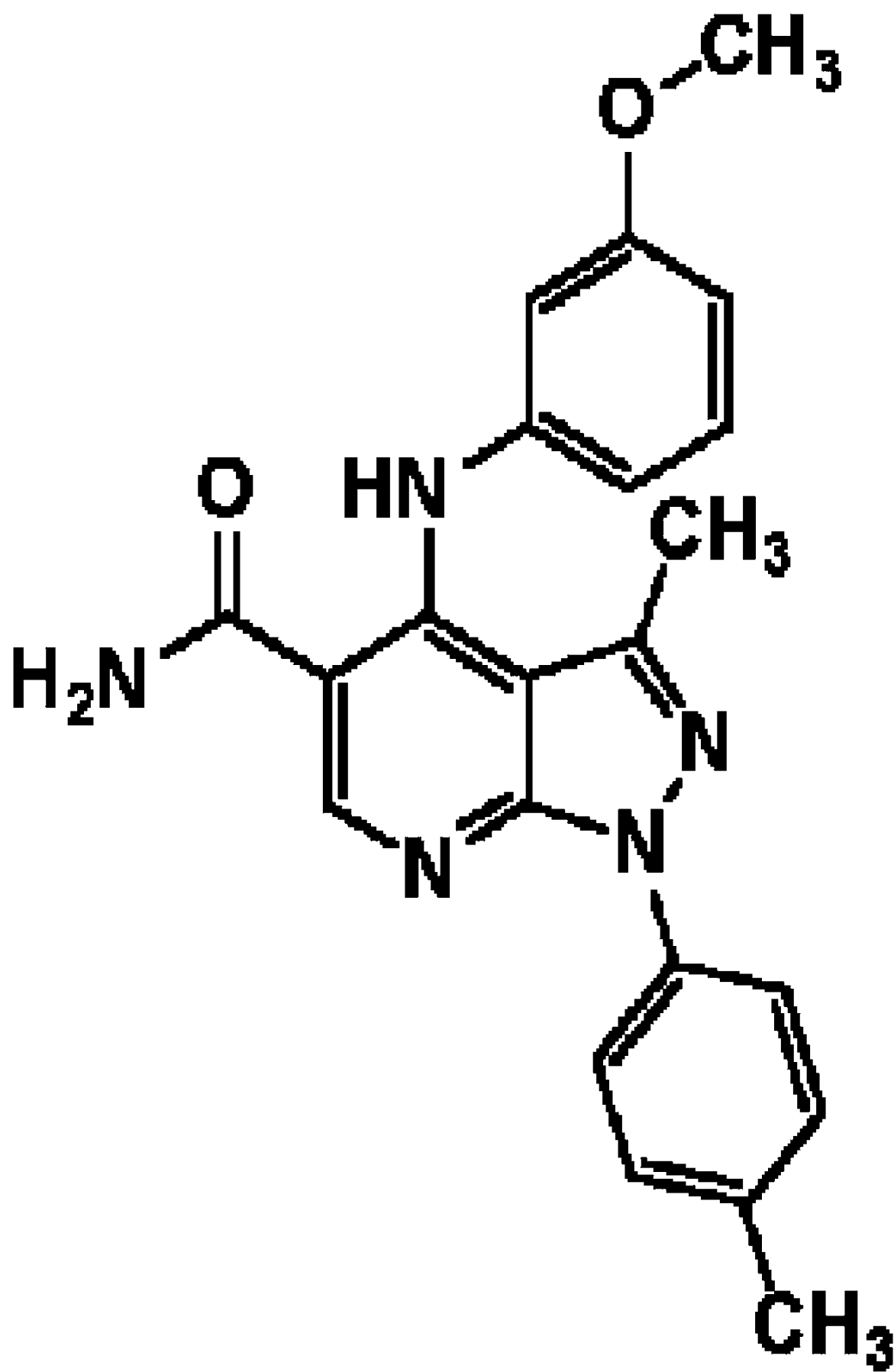
1 - (4 -methylphenyl) - 3 -methyl -4- (3 -methoxyphenyl

ニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサ
ミド

amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

【化 60】

[Chemical Formula 60]



【0157】

TLC:Rf 0.60 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.91 (s, 1H), 8.79 (s, 1H), 8.26 (brs, 1H), 8.03(d, J = 8.1 Hz, 2H), 7.66 (brs, 1H), 7.31 (d, J = 8.1 Hz, 2H), 7.21 (t, J = 8.4 Hz, 1H), 6.75-6.67 (m, 3H), 3.71 (s, 3H), 2.35 (s, 3H), 1.79 (s, 3H)。

【0158】

実施例 1(41)

1-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5, 4-b]ピリジン-5-カルボキサミド

【化 61】

[0157]

TLC:Rf 0.60 (chloroform :methanol =9 : 1);

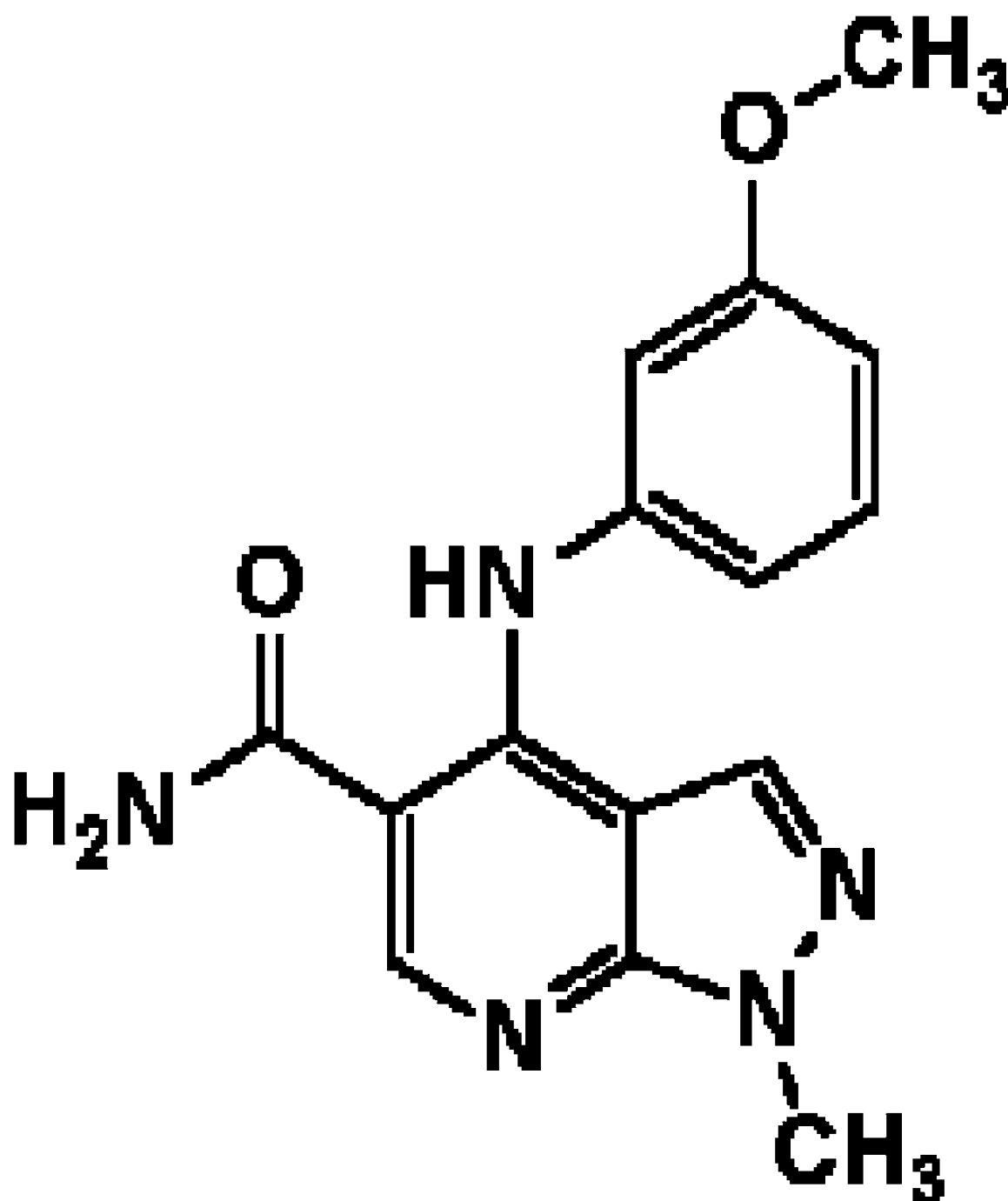
nmr (DMSO - d_6) : δ 10.91 (s, 1H), 8.79 (s, 1H), 8.26 (brs, 1H), 8.03 (d, J=8.1Hz, 2H), 7.66 (brs, 1H), 7.31 (d, J=8.1Hz, 2H), 7.21 (t, J=8.4Hz, 1H), 6.75 - 6.67 (m, 3H), 3.71 (s, 3H), 2.35 (s, 3H), 1.79 (s, 3H).

[0158]

Working Example 1 (41)

1 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 61]



【0159】

TLC:Rf 0.31 (酢酸エチル);

NMR (DMSO- d_6) : δ 11.49 (s, 1H), 8.72 (s, 1H), 8.14 (br.s, 1H), 7.46 (br.s, 1H), 7.38 (t, J = 7.5 Hz, 1H), 7.00-6.85 (m, 3H), 6.67 (s, 1H), 3.89 (s, 3H), 3.75 (s, 3H).

[0159]

TLC:Rf 0.31 (ethylacetate);

nmr (DMSO - d_6): δ 11.49 (s, 1H), 8.72 (s, 1H), 8.14 (br.s, 1H), 7.46 (br.s, 1H), 7.38 (t, J=7.5Hz, 1H), 7.00 - 6.85(m, 3H), 6.67 (s, 1H), 3.89 (s, 3H), 3.75 (s, 3H).

【0160】

実施例 1(42)

1-(3-メトキシフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

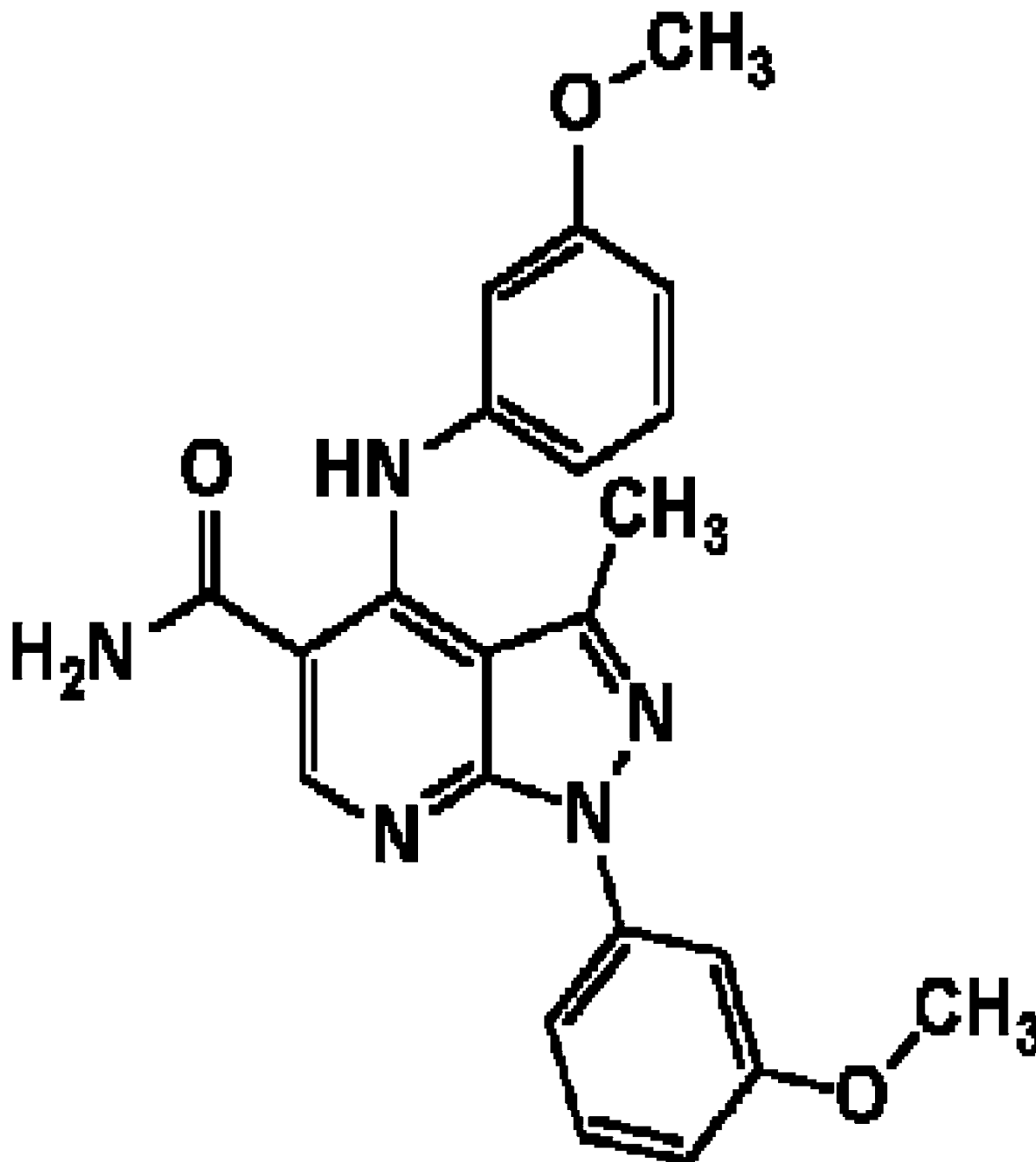
【化 62】

[0160]

Working Example 1 (42)

1 - (3 -methoxyphenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 62]



【0161】

[0161]

TLC:Rf 0.36 (クロロホルム:メタノール=9:1);

NMR (DMSO-d₆) : δ 10.92 (s, 1H), 8.82 (s, 1H), 8.35-8.20 (brs, 1H), 7.82-7.79 (m, 2H), 7.73-7.60 (brs, 1H), 7.42 (t, J = 8.1 Hz, 1H), 7.22 (t, J = 8.1 Hz, 1H), 6.89- 6.85 (m, 1H), 6.75-6.68 (m, 3H), 3.82 (s, 3H), 3.71 (s, 3H), 1.80 (s, 3H)。

【0162】

実施例 1(43)

1-(4-メトキシフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 63】

TLC:Rf 0.36 (chloroform :methanol =9 : 1);

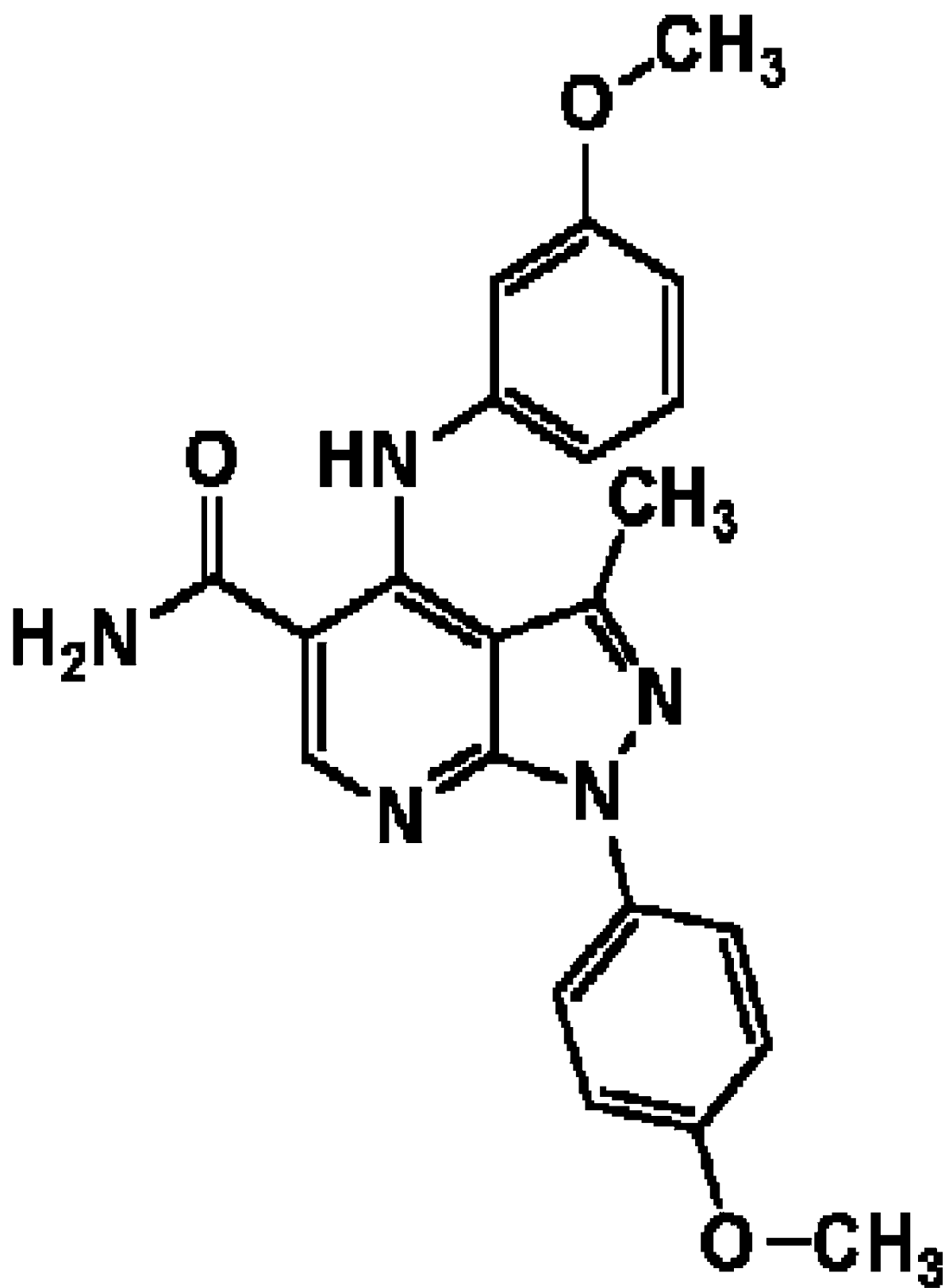
nmr (DMSO -d₆) ; δ 10.92 (s, 1H), 8.82 (s, 1H), 8.35 - 8.20 (brs, 1H), 7.82 - 7.79 (m, 2H), 7.73 -7.60 (brs, 1H), 7.42 (t, J=8.1Hz, 1H), 7.22 (t, J=8.1Hz, 1H), 6.89 - 6.85 (m, 1H), 6.75 - 6.68 (m, 3H), 3.82 (s, 3H), 3.71 (s, 3H), 1.80 (s, 3H).

[0162]

Working Example 1 (43)

1 - (4 -methoxyphenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 63]



【0163】

[0163]

TLC:Rf 0.46 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.93 (s, 1H), 8.78 (s, 1H), 8.30-8.20 (brs, 1H), 8.00 (d, J = 9.0 Hz, 2H), 7.67-7.58 (brs, 1H), 7.22 (t, J = 8.1 Hz, 1H), 7.08 (d, J = 9.0 Hz, 2H), 6.75-6.67 (m, 3H), 3.80 (s, 3H), 3.71 (s, 3H), 1.79 (s, 3H).

【0164】

実施例 1(44)

1-(3-メチルフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 64】

TLC:Rf 0.46 (chloroform :methanol =9 : 1);

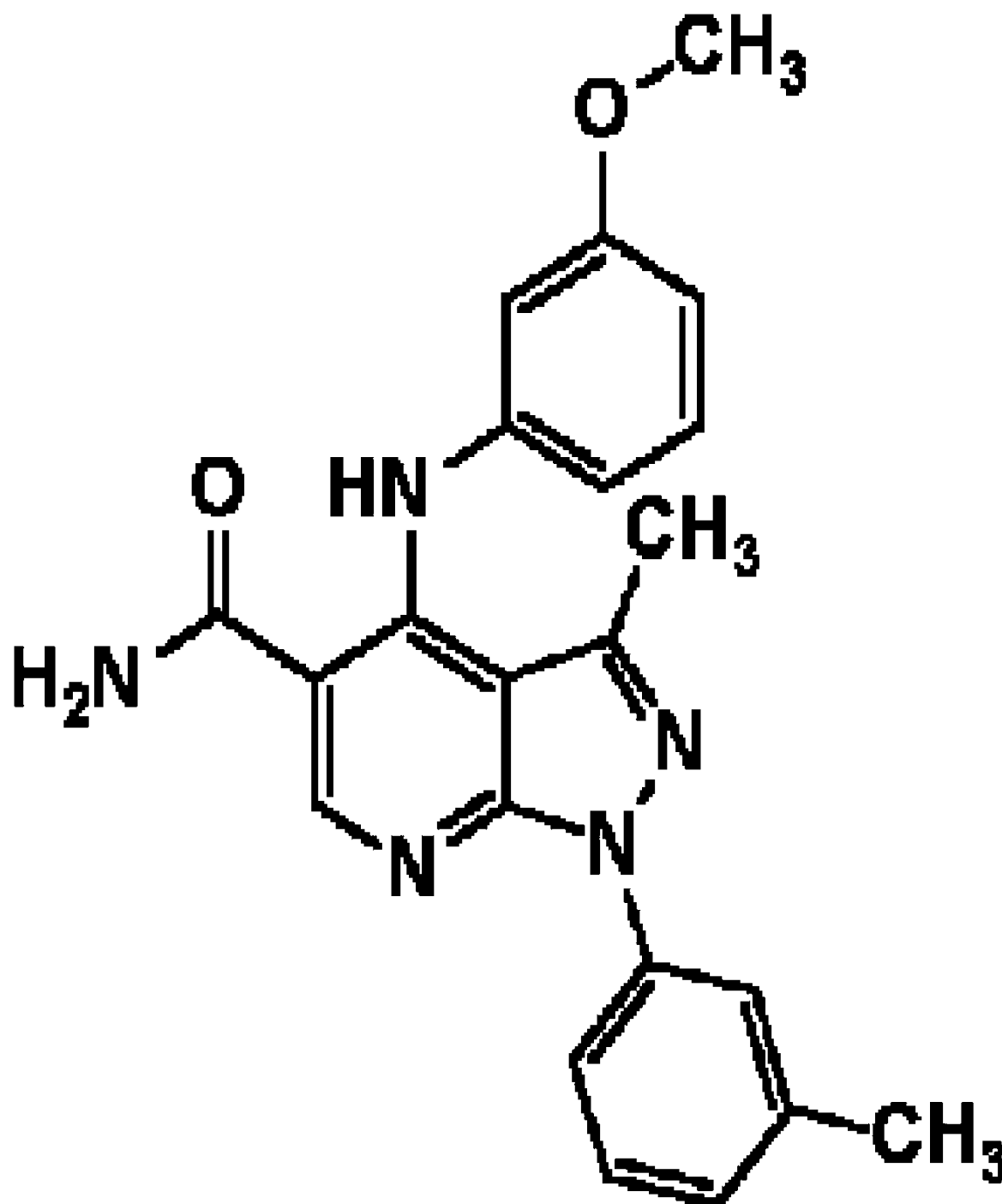
nmr (DMSO - d_6): δ 10.93 (s, 1H), 8.78 (s, 1H), 8.30 - 8.20 (brs, 1H), 8.00 (d, J=9.0Hz, 2H), 7.67 - 7.58(brs, 1H), 7.22 (t, J=8.1Hz, 1H), 7.08 (d, J=9.0Hz, 2H), 6.75 - 6.67 (m, 3H), 3.80 (s, 3H), 3.71 (s, 3H), 1.79 (s, 3H).

[0164]

Working Example 1 (44)

1 - (3 -methylphenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 64]



【0165】

TLC:Rf 0.45(クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.92 (s, 1H), 8.81 (s, 1H), 8.26 (brs, 1H), 8.00-7.95(m, 2H), 7.67 (brs, 1H), 7.40 (t, J=7.8 Hz, 1H), 7.21 (t, J=7.8 Hz, 1H), 7.12 (d, J=7.8Hz, 1H), 6.80-6.65 (m, 3H), 3.71 (s, 3H), 2.39 (s, 3H), 1.80

[0165]

TLC:Rf 0.45 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) ; δ 10.92 (s, 1H), 8.81 (s, 1H), 8.26 (brs, 1H), 8.00 - 7.95 (m, 2H), 7.67 (brs, 1H), 7.40(t, J=7.8Hz , 1H), 7.21 (t, J=7.8Hz , 1H), 7.12 (d, J=7.8Hz, 1H), 6.80 - 6.65 (m, 3H), 3.71 (s, 3H), 2.39 (s, 3H), 1.80 (s, 3H).

(s, 3H).

3H), 1.80 (s, 3H).

【0166】

[0166]

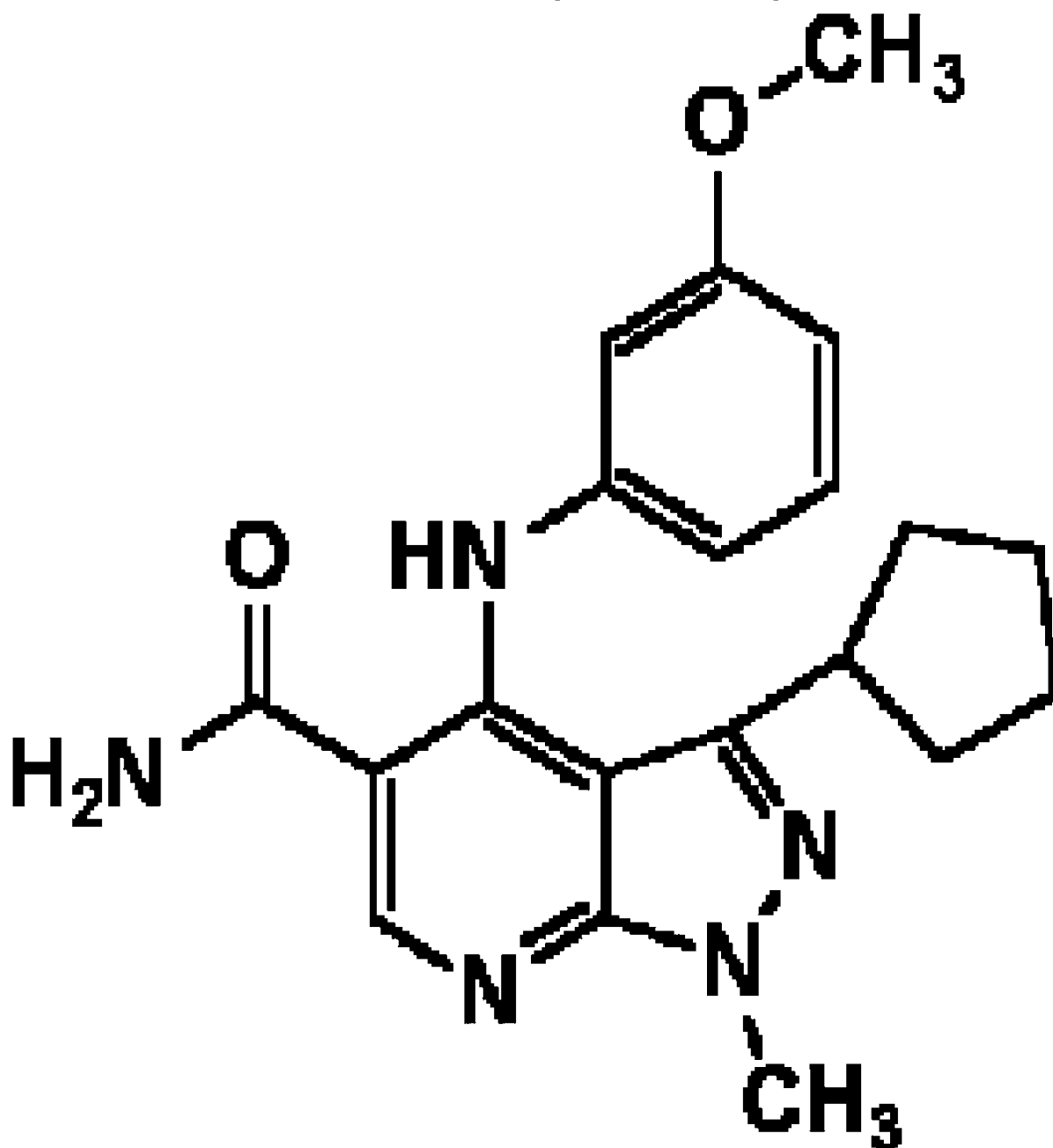
実施例 1(45)

Working Example 1 (45)

1-メチル-3-シクロペンチル-4-(3-メトキシフェニル
アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド1 -methyl -3- cyclopentyl -4- (3 -methoxyphenyl amino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

【化 65】

[Chemical Formula 65]



【0167】

[0167]

TLC:Rf 0.50 (クロロホルム:メタノール=10:1);

NMR (DMSO- d_6) : δ 10.82 (s, 1H), 8.74 (s, 1H), 8.21 (bs, 1H), 7.56(bs, 1H), 7.17 (d, J = 8.1 Hz, 1H), 6.70-6.61 (m, 2H), 6.56 (d, J = 8.1Hz, 1H), 3.91 (s, 3H), 3.69 (s, 3H), 2.25-2.10 (m, 1H), 1.65-1.43 (m, 6H), 1.35-1.15 (m, 2H)。

【0168】

実施例 1(46)

1-(2-クロロフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 66】

TLC:Rf 0.50 (chloroform :methanol =10:1);

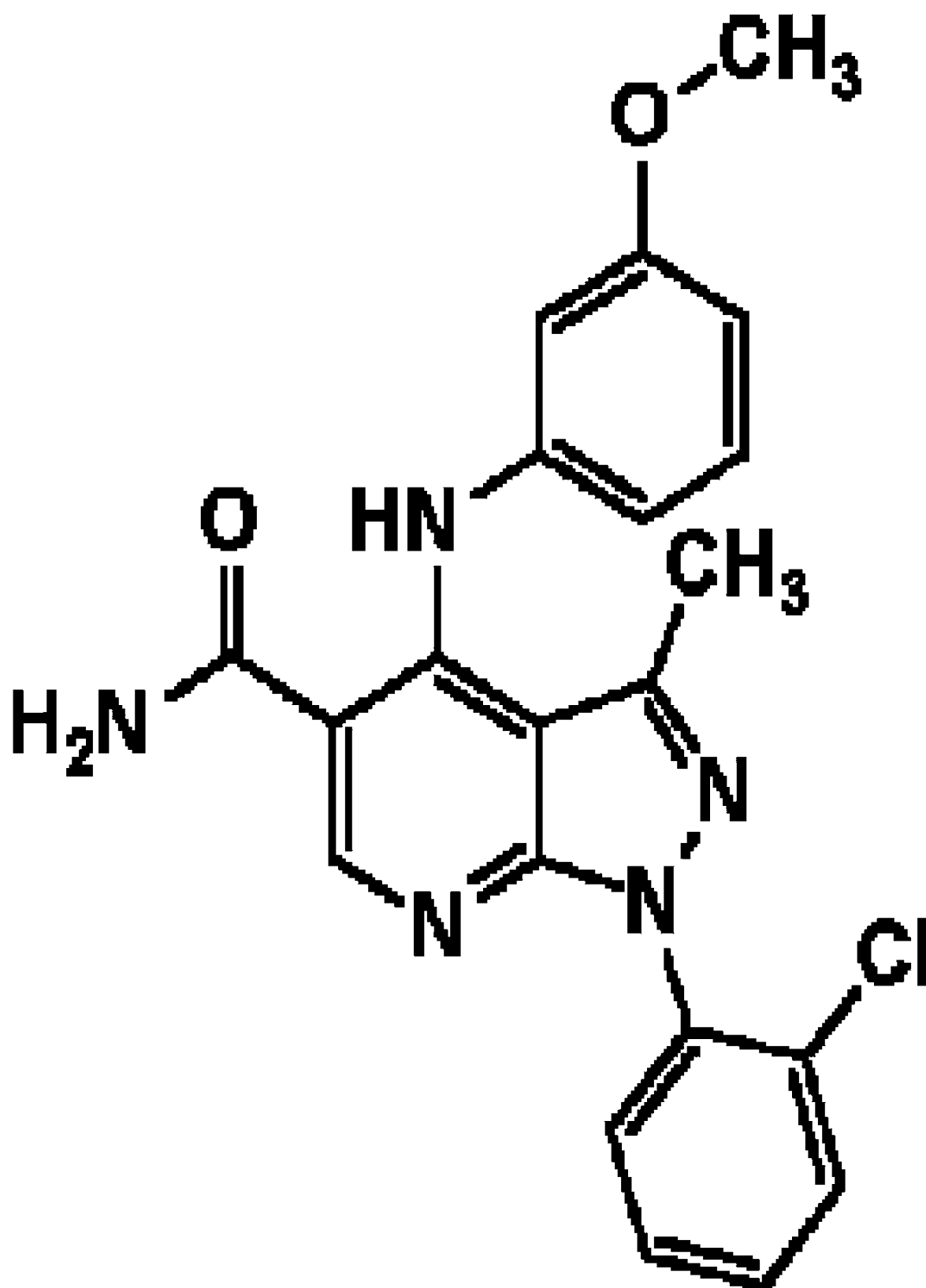
nmr (DMSO - d_6) : δ 10.82 (s, 1H), 8.74 (s, 1H), 8.21 (bs, 1H), 7.56 (bs, 1H), 7.17 (d, J=8.1Hz, 1H), 6.70 - 6.61(m, 2H), 6.56 (d, J=8.1Hz, 1H), 3.91 (s, 3H), 3.69 (s, 3H), 2.25 - 2.10 (m, 1H), 1.65 - 1.43 (m, 6H), 1.35 -1.15 (m, 2H).

[0168]

Working Example 1 (46)

1 - (2 -chlorophenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 66]



【0169】

TLC:Rf 0.48 (ヘキサン:酢酸エチル=1:3);

NMR (DMSO- d_6) : δ 10.93 (br, 1H), 8.67 (s, 1H), 8.23 (br, 1H), 7.70(dd, J = 7.7, 1.8 Hz, 1H), 7.66-7.49 (m, 4H), 7.25 (dd, J = 7.7, 7.7 Hz, 1H), 6.78-6.67 (m, 3H), 3.72 (s, 3H), 1.78 (s, 3H).

【0170】

実施例 1(47)

1-(3-クロロフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 67】

[0169]

TLC:Rf 0.48 (hexane :ethylacetate =1:3);

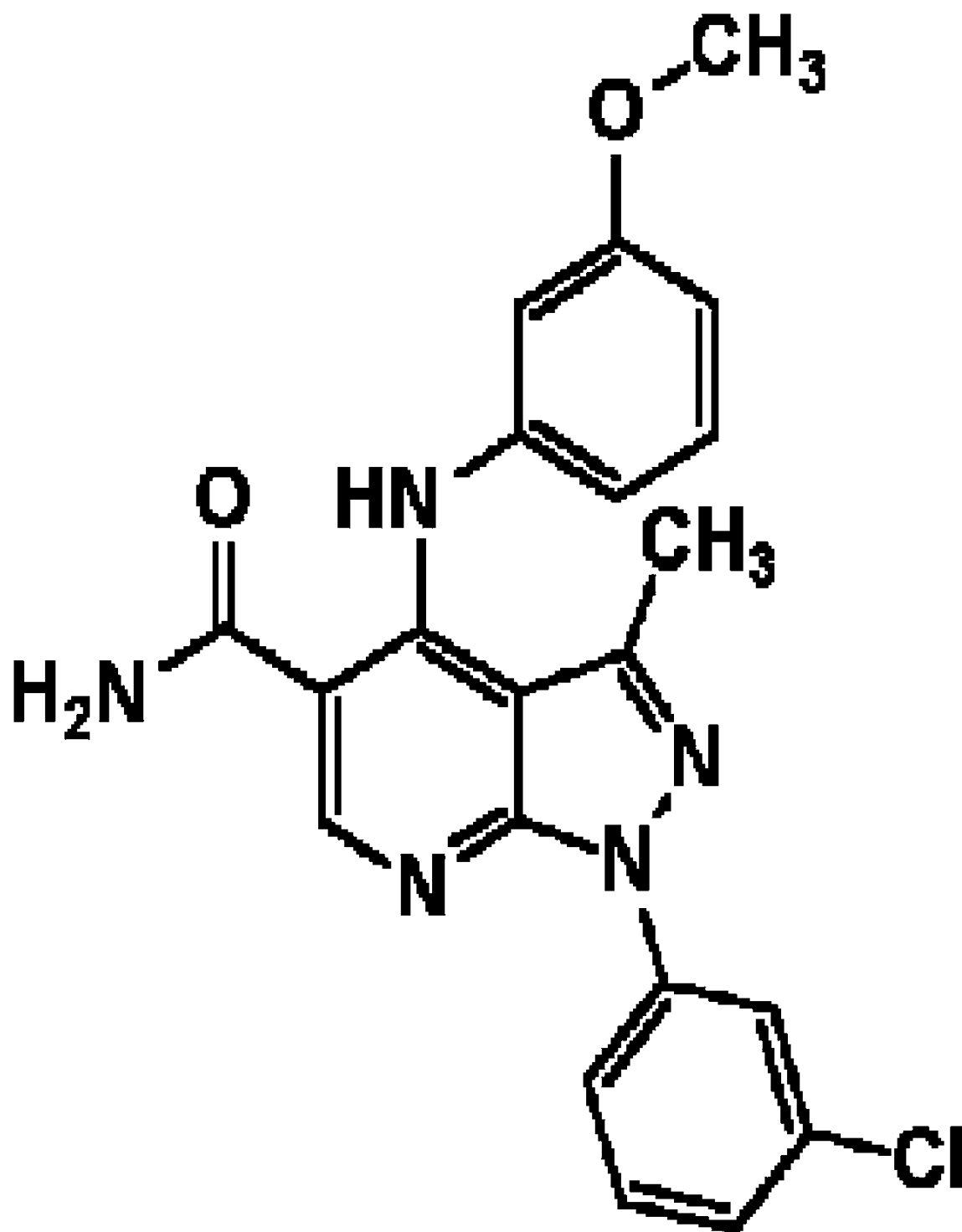
nmr (DMSO - d_6): δ 10.93 (br, 1H), 8.67 (s, 1H), 8.23 (br, 1H), 7.70 (dd, J=7.7, 1.8Hz, 1H), 7.66 - 7.49 (m, 4H), 7.25(dd, J=7.7, 7.7Hz, 1H), 6.78 - 6.67 (m, 3H), 3.72 (s, 3H), 1.78 (s, 3H).

[0170]

Working Example 1 (47)

1 - (3 -chlorophenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 67]



【0171】

TLC:Rf 0.50 (ヘキサン:酢酸エチル=1:1);

NMR (DMSO- d_6) : δ 10.95 (br, 1H), 8.84 (s, 1H), 8.39 (dd, J = 2.0, 2.0 Hz, 1H), 8.28 (br, 1H), 8.22-8.18 (m, 1H), 7.70 (br, 1H), 7.

[0171]

TLC:Rf 0.50 (hexane :ethylacetate =1:1);

nmr (DMSO - d_6) : δ 10.95 (br, 1H), 8.84 (s, 1H), 8.39 (dd, J=2.0, 2.0Hz , 1H), 8.28 (br, 1H), 8.22 - 8.18 (m, 1H), 7.70(br, 1H), 7.55 (dd, J=8.1, 8.1Hz , 1H), 7.38 -

5.5 (dd, J = 8.1, 8.1 Hz, 1H), 7.38-7.33 (m, 1H), 7.22 (dd, J = 8.0, 8.0 Hz, 1H), 6.79-6.68 (m, 3H), 3.72 (s, 3H), 1.79 (s, 3H).

【0172】

実施例 1(48)

1-(4-クロロフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 68】

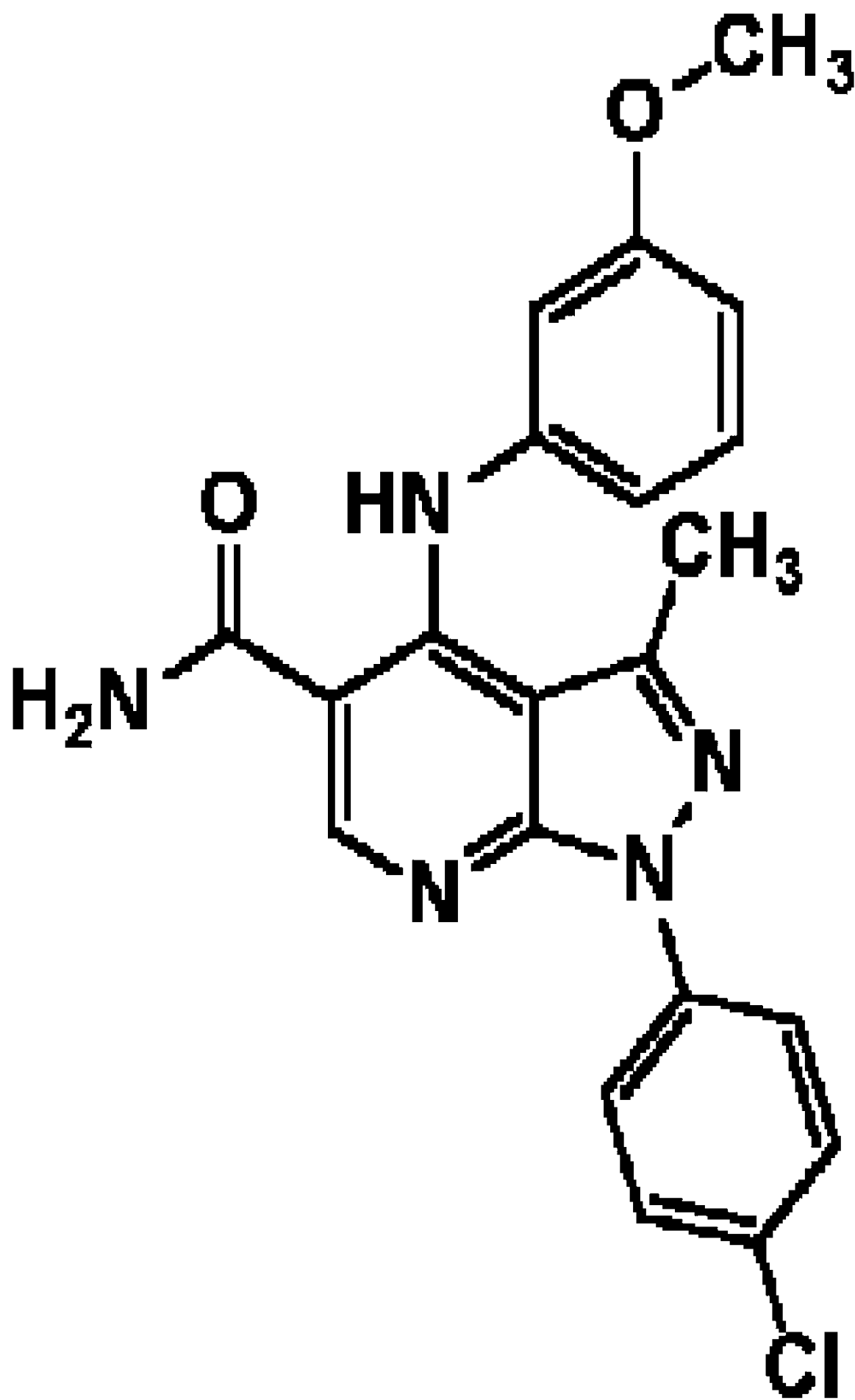
7.33 (m, 1H), 7.22 (dd, J=8.0, 8.0Hz, 1H), 6.79 - 6.68 (m, 3H), 3.72 (s, 3H), 1.79(s, 3H).

[0172]

Working Example 1 (48)

1 - (4 -chlorophenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 68]



【0173】

TLC:Rf 0.38 (ヘキサン:酢酸エチル=1:1);

NMR (DMSO- d_6) : δ 10.94 (br, 1H), 8.81 (s, 1H), 8.29 (br, 1H), 8.26 (d, J = 9.0 Hz, 2H), 7.69 (br, 1H), 7.58 (d, J = 9.0 Hz, 2H), 7.22 (dd, J = 8.1, 8.1 Hz, 1H), 6.77-6.67 (m, 3H), 3.71 (s, 3H), 1.79 (s, 3H)。

【0174】

実施例 1(49)

1-エチル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 69】

[0173]

TLC:Rf 0.38 (hexane :ethylacetate =1:1);

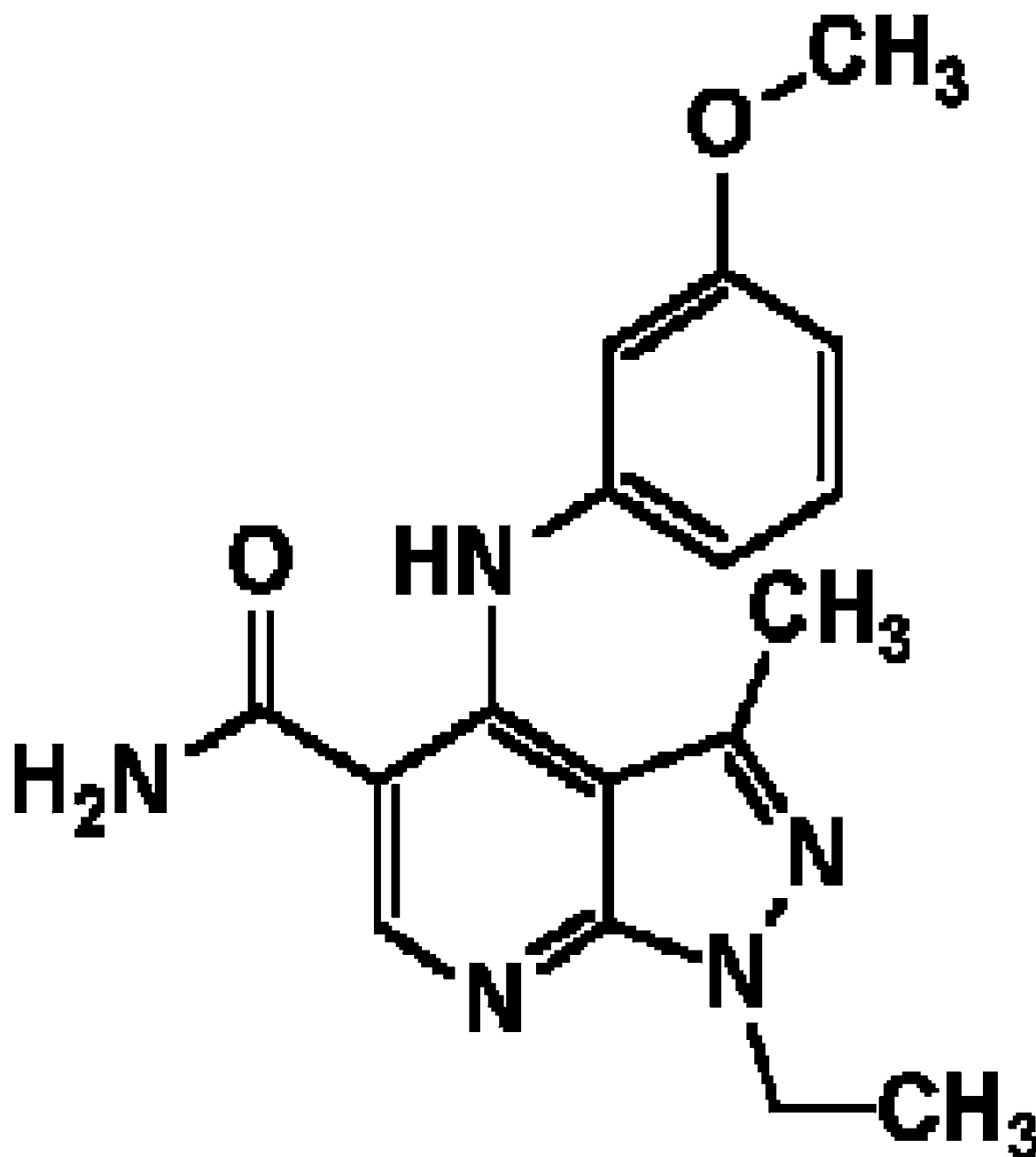
nmr (DMSO - d_6): δ 10.94 (br, 1H), 8.81 (s, 1H), 8.29 (br, 1H), 8.26 (d, J=9.0Hz, 2H), 7.69 (br, 1H), 7.58 (d, J=9.0Hz, 2H), 7.22 (dd, J=8.1, 8.1Hz, 1H), 6.77 - 6.67 (m, 3H), 3.71 (s, 3H), 1.79 (s, 3H).

[0174]

Working Example 1 (49)

1-ethyl-3-methyl-4-(3-methoxyphenyl amino) pyrazolo [5 and 4-b] pyridine -5-carboxamide

[Chemical Formula 69]



【0175】

TLC:Rf 0.51 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.93 (s, 1H), 8.71 (s, 1H), 8.22-8.15 (brs, 1H), 7.60-7.50 (brs, 1H), 7.20 (dd, J = 8.7, 7.8 Hz, 1H), 6.70-6.67 (m, 2H), 6.63 (d, J = 8.7 Hz, 1H), 4.31 (q, J = 7.2 Hz, 2H), 3.70 (s, 3H), 1.69 (s, 3H), 1.35 (t, J = 7.2 Hz, 1H).

【0176】

[0175]

TLC:Rf 0.51 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6): δ 10.93 (s, 1H), 8.71 (s, 1H), 8.22 - 8.15 (brs, 1H), 7.60 - 7.50 (brs, 1H), 7.20(dd, J=8.7, 7.8Hz, 1H), 6.70 - 6.67 (m, 2H), 6.63 (d, J=8.7Hz, 1H), 4.31 (q, J=7.2Hz, 2H), 3.70 (s, 3H), 1.69 (s, 3H), 1.35 (t, J=7.2Hz, 1H).

[0176]

実施例 1(50)

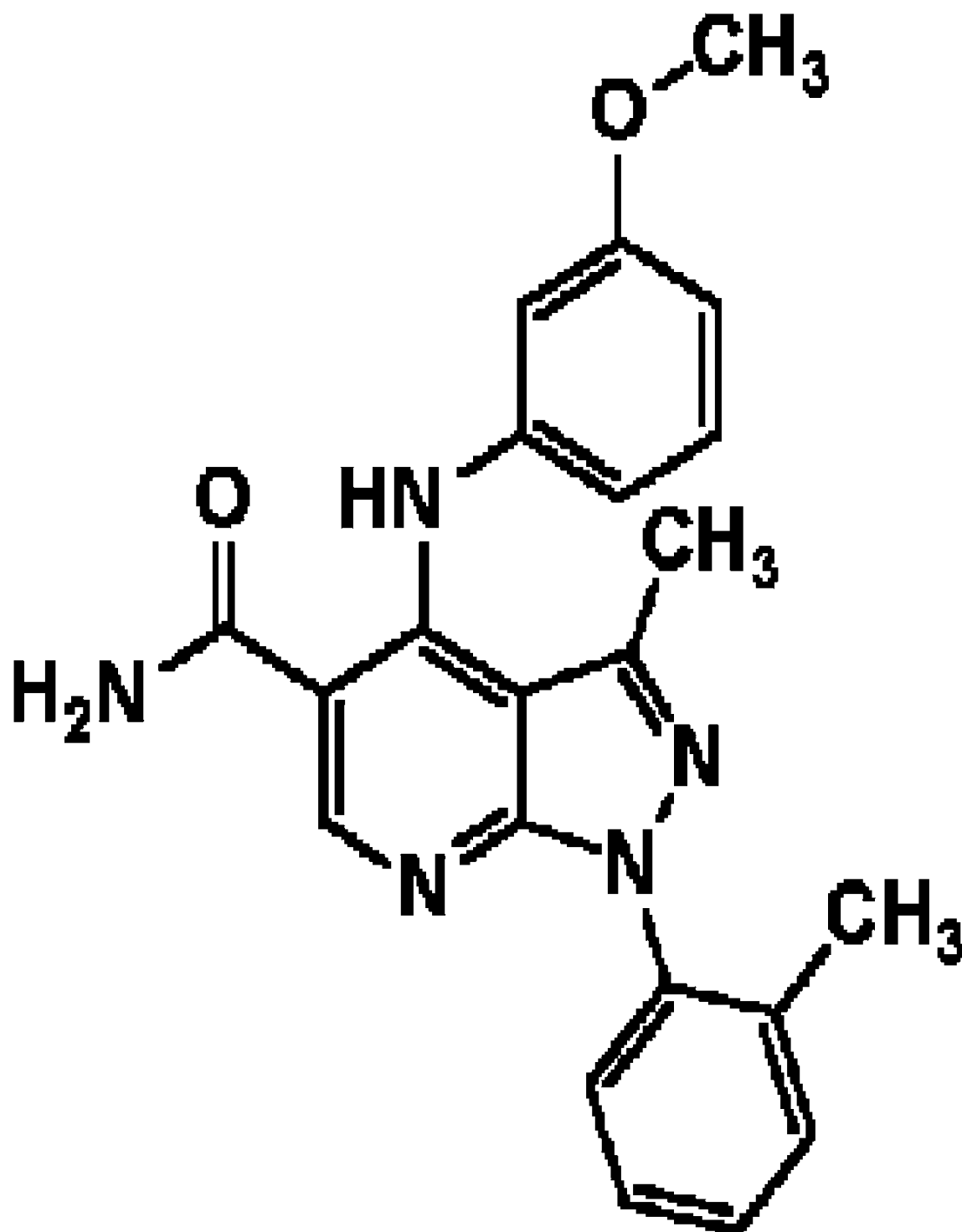
1-(2-メチルフェニル)-3-メチル-4-(3-メトキシフェ
ニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサ
ミド

【化 70】

Working Example 1 (50)

1 - (2 -methylphenyl) - 3 -methyl -4- (3 -methoxyphenyl
amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 70]



【0177】

TLC:Rf 0.45(クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.95 (s, 1H), 8.67 (s, 1H), 8.21 (brs, 1H), 7.59(brs, 1H), 7.45-7.30(m, 4H), 7.24 (t, J=8.1 Hz, 1H), 6.80-6.60

[0177]

TLC:Rf 0.45 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 10.95 (s, 1H), 8.67 (s, 1H), 8.21 (brs, 1H), 7.59 (brs, 1H), 7.45 - 7.30 (m, 4H), 7.24(t, J=8.1Hz , 1H), 6.80 - 6.60 (m, 3H), 3.72 (s, 3H),

(m, 3H), 3.72 (s, 3H), 2.05 (s, 3H), 1.78 (s, 3H)。

【0178】

実施例 1(51)

1-シクロペンチル-3-メチル-4-(3-メトキシフェニル
アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 71】

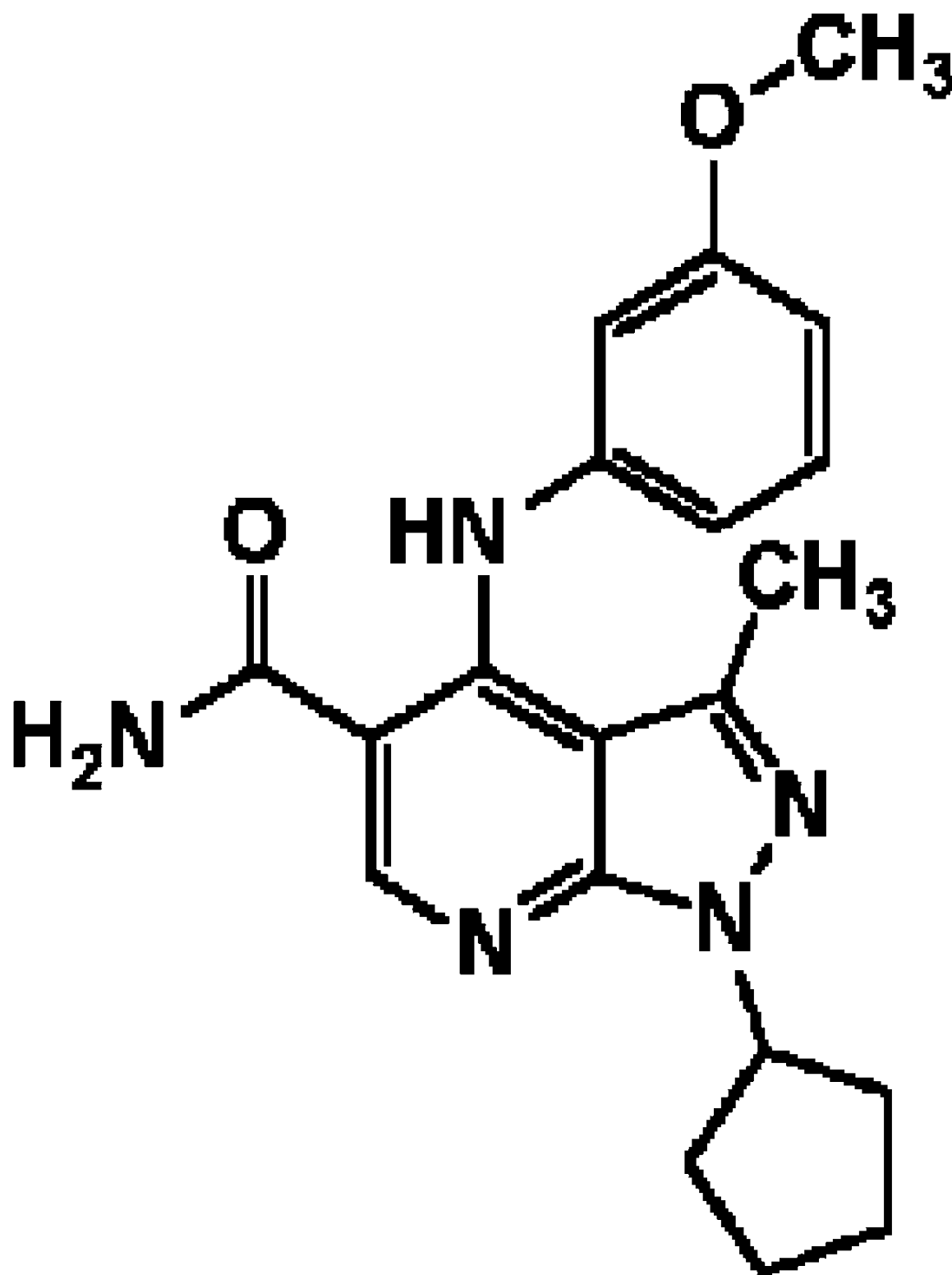
2.05 (s, 3H), 1.78 (s, 3H).

[0178]

Working Example 1 (51)

1 -cyclopentyl -3- methyl -4- (3 -methoxyphenyl amino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 71]



【0179】

TLC:Rf 0.35 (クロロホルム:メタノール=10:1);

[0179]

TLC:Rf 0.35 (chloroform :methanol =10:1);

NMR (DMSO- d_6) : δ 10.91 (s, 1H), 8.70 (s, 1H), 8.18 (br.s, 1H), 7.54 (br.s, 1H), 7.19 (t, J = 8.4 Hz, 1H), 6.75-6.60 (m, 3H), 5.23 (quintet, J = 7.4 Hz, 1H), 3.70 (s, 3H), 2.10-1.75 (m, 6H), 1.70 (s, 3H), 1.75-1.60 (m, 2H)。

【0180】

実施例 1(52)

1-ブチル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 72】

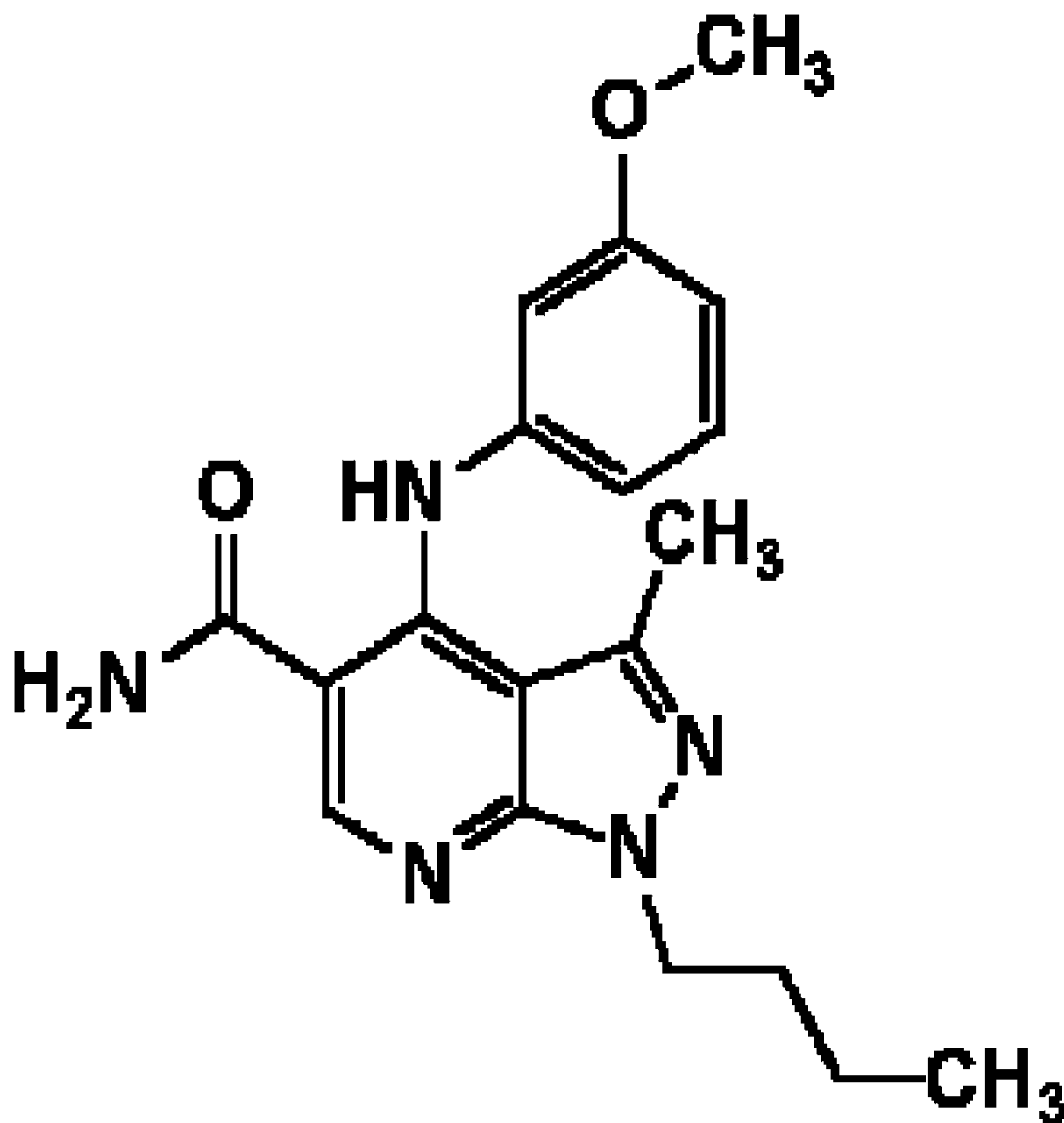
nmr (DMSO - d_6) : δ 10.91 (s, 1H), 8.70 (s, 1H), 8.18 (br.s, 1H), 7.54 (br.s, 1H), 7.19 (t, J=8.4Hz, 1H), 6.75 - 6.60(m, 3H), 5.23 (quintet, J=7.4Hz, 1H), 3.70 (s, 3H), 2.10 - 1.75 (m, 6H), 1.70 (s, 3H), 1.75 - 1.60 (m, 2H).

[0180]

Working Example 1 (52)

1 -butyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 72]



【0181】

TLC:Rf 0.40(クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.94 (s, 1H), 8.71 (s, 1H), 8.19 (brs, 1H), 7.55(brs, 1H), 7.23-7.17 (m, 1H), 6.73-6.60 (m, 3H), 4.28 (t, J = 7.0 Hz, 2H), 3.69 (s, 3H), 1.77(quint., J = 7.0 Hz, 2H), 1.68 (s, 3H), 1.20 (tq, J= 7.0, 7.5 Hz, 2H), 0.87 (t, J = 7.5 Hz, 3H)。

【0182】

実施例 1(53)

[0181]

TLC:Rf 0.40 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 10.94 (s, 1H), 8.71 (s, 1H), 8.19 (brs, 1H), 7.55 (brs, 1H), 7.23 - 7.17 (m, 1H), 6.73- 6.60 (m, 3H), 4.28 (t, J=7.0Hz , 2H), 3.69 (s, 3H), 1.77 (quint., J=7.0Hz , 2H), 1.68 (s, 3H), 1.20 (tq, J=7.0, 7.5Hz , 2H), 0.87 (t, J=7.5Hz , 3H).

[0182]

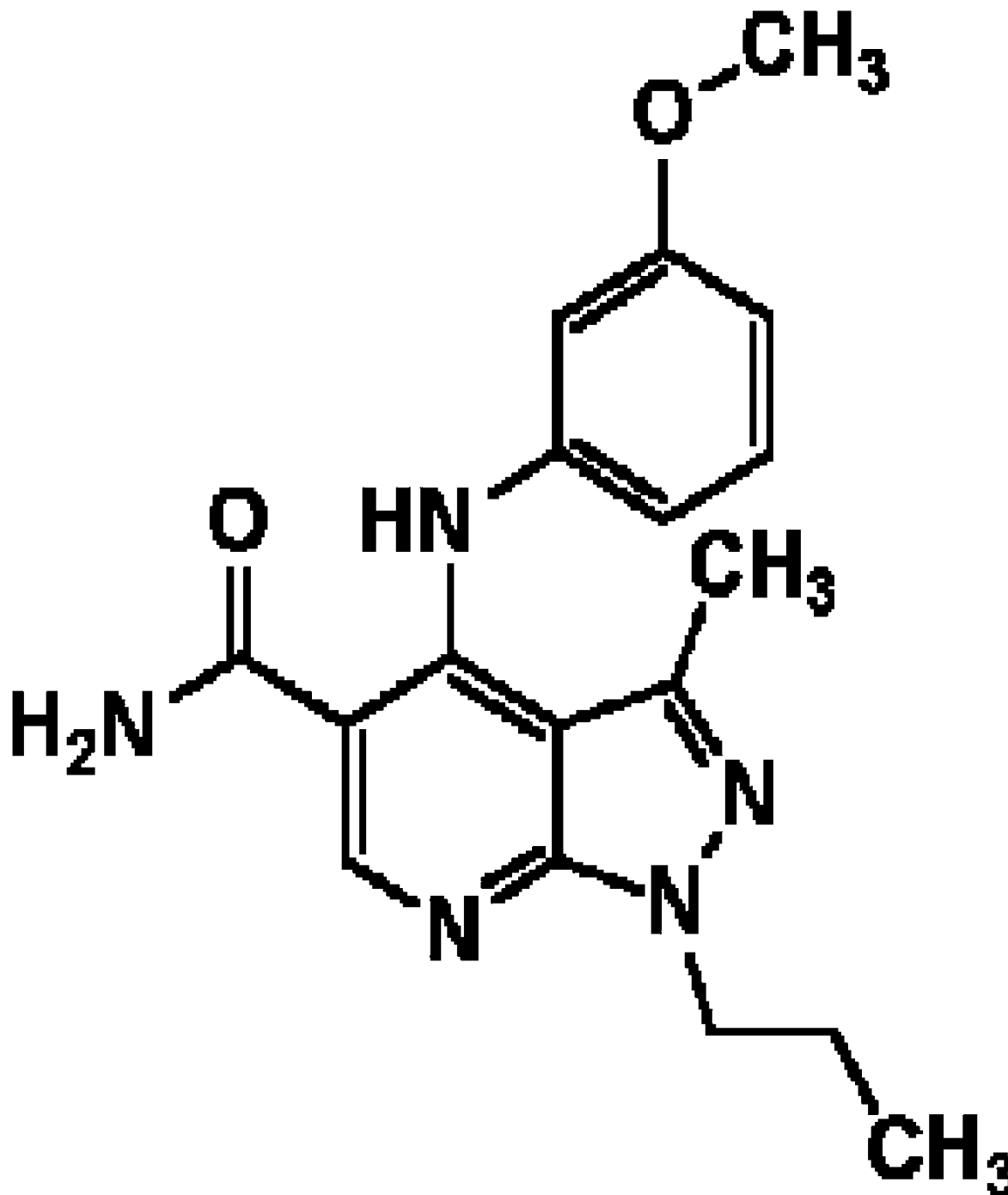
Working Example 1 (53)

1-プロピル-3-メチル-4-(3-メトキシフェニルアミノ)
ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 73】

1 -propyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo
[5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 73]



【0183】

TLC:Rf 0.40(クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.94 (s, 1H), 8.71

[0183]

TLC:Rf 0.40 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6): δ 10.94 (s, 1H), 8.71 (s,

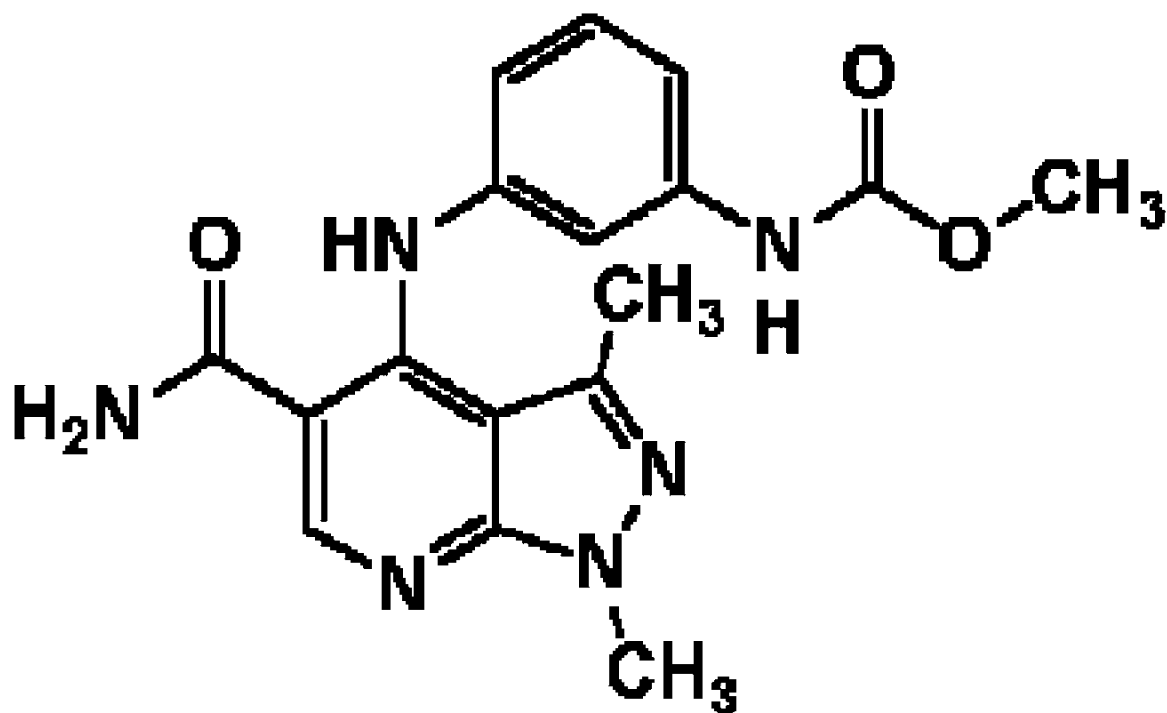
(s, 1H), 8.18 (brs, 1H), 7.55(brs, 1H), 7.23-7.17 (m, 1H), 6.71-6.62 (m, 3H), 4.23 (tq, J = 6.6 Hz, 2H), 3.69 (s, 3H), 1.80 (t, J = 6.6, 7.2 Hz, 2H), 1.69 (a, 3H), 0.81 (t, J = 7.2 Hz, 3H)。

【0184】

実施例 1(54)

1-メチル-3-メチル-4-(3-(メトキシカルボニルアミノ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 74】



【0185】

TLC:Rf 0.41 (クロロホルム:メタノール=10:1);

NMR (DMSO-d₆) : δ 10.99 (s, 1H), 9.62 (s, 1H), 8.73 (s, 1H), 8.21 (br, 1H), 7.56 (br, 1H), 7.23-7.19 (m, 3H), 6.75-6.71 (m, 1H), 3.87 (s, 3H), 3.61 (s, 3H), 1.67 (s, 3H)。

【0186】

実施例 1(55)

1-シクロヘキシル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 75】

1H), 8.18 (brs, 1H), 7.55 (brs, 1H), 7.23 - 7.17 (m, 1H), 6.71 - 6.62 (m, 3H), 4.23 (tq, J=6.6Hz, 2H), 3.69 (s, 3H), 1.80 (t, J=6.6, 7.2Hz, 2H), 1.69 (a, 3H), 0.81 (t, J=7.2Hz, 3H)。

【0184】

Working Example 1 (54)

1 -methyl -3- methyl -4- (3 - ([metokishikaruboniruamino]) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 74]

【0185】

TLC:Rf 0.41 (chloroform :methanol =10:1);

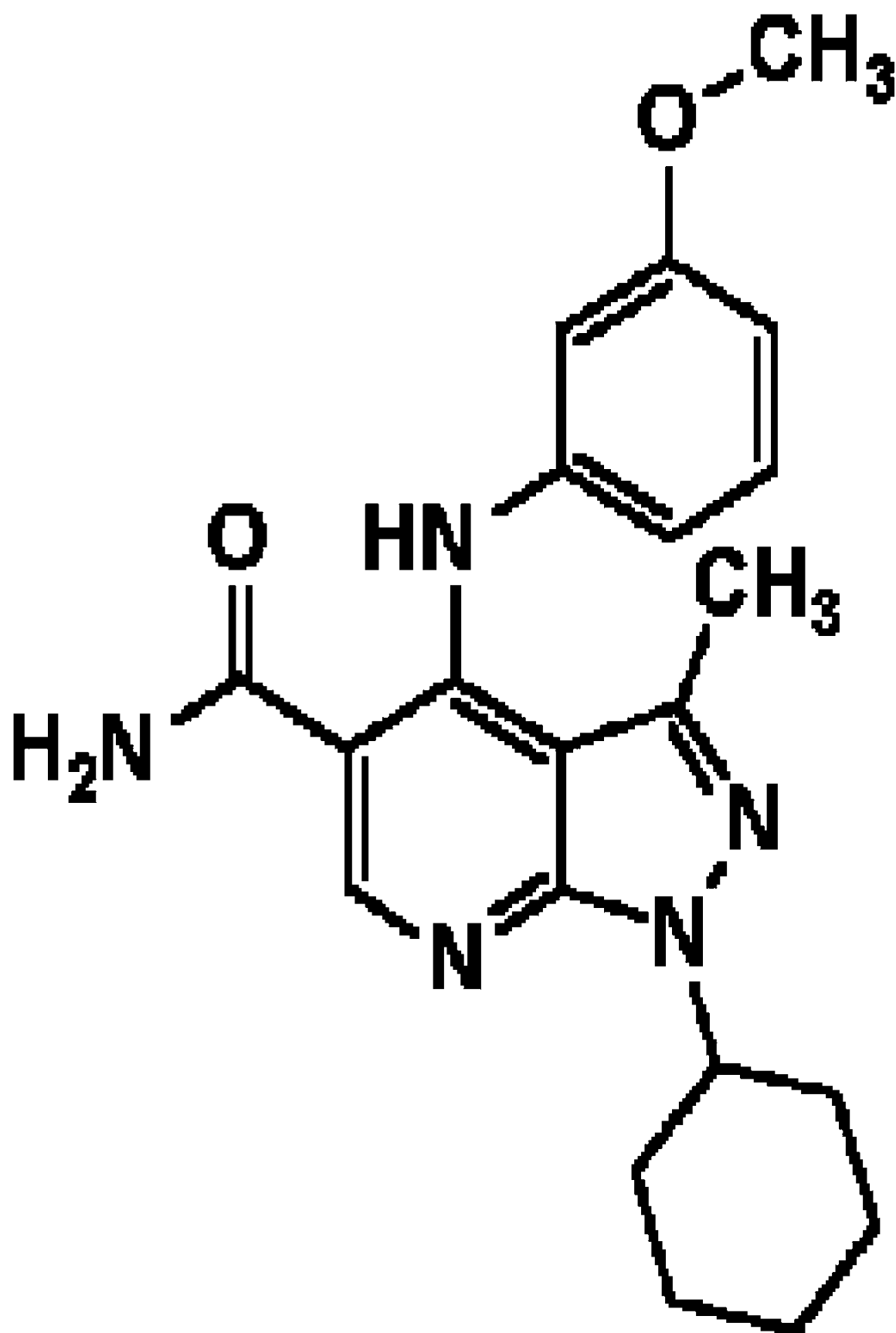
nmr (DMSO -d₆) : δ 10.99 (s, 1H), 9.62 (s, 1H), 8.73 (s, 1H), 8.21 (br, 1H), 7.56 (br, 1H), 7.23 - 7.19(m, 3H), 6.75 - 6.71 (m, 1H), 3.87 (s, 3H), 3.61 (s, 3H), 1.67 (s, 3H)。

【0186】

Working Example 1 (55)

1 -cyclohexyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 75]



【0187】

TLC:Rf 0.50 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.54 (s, 1H), 8.51 (s, 1H), 7.22-7.15 (m, 1H), 6.73-6.66 (m, 3H), 5.90-5.70 (brs, 2H), 4.78-4.68 (m, 1H), 3.76 (s, 3H), 2.05-1.85 (m, 6H), 1.80 (s, 3H), 1.75-1.20 (m, 4H)。

【0188】

実施例 1(56)

1-(2-メトキシフェニル)-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 76】

[0187]

TLC:Rf 0.50 (chloroform :methanol =9 : 1);

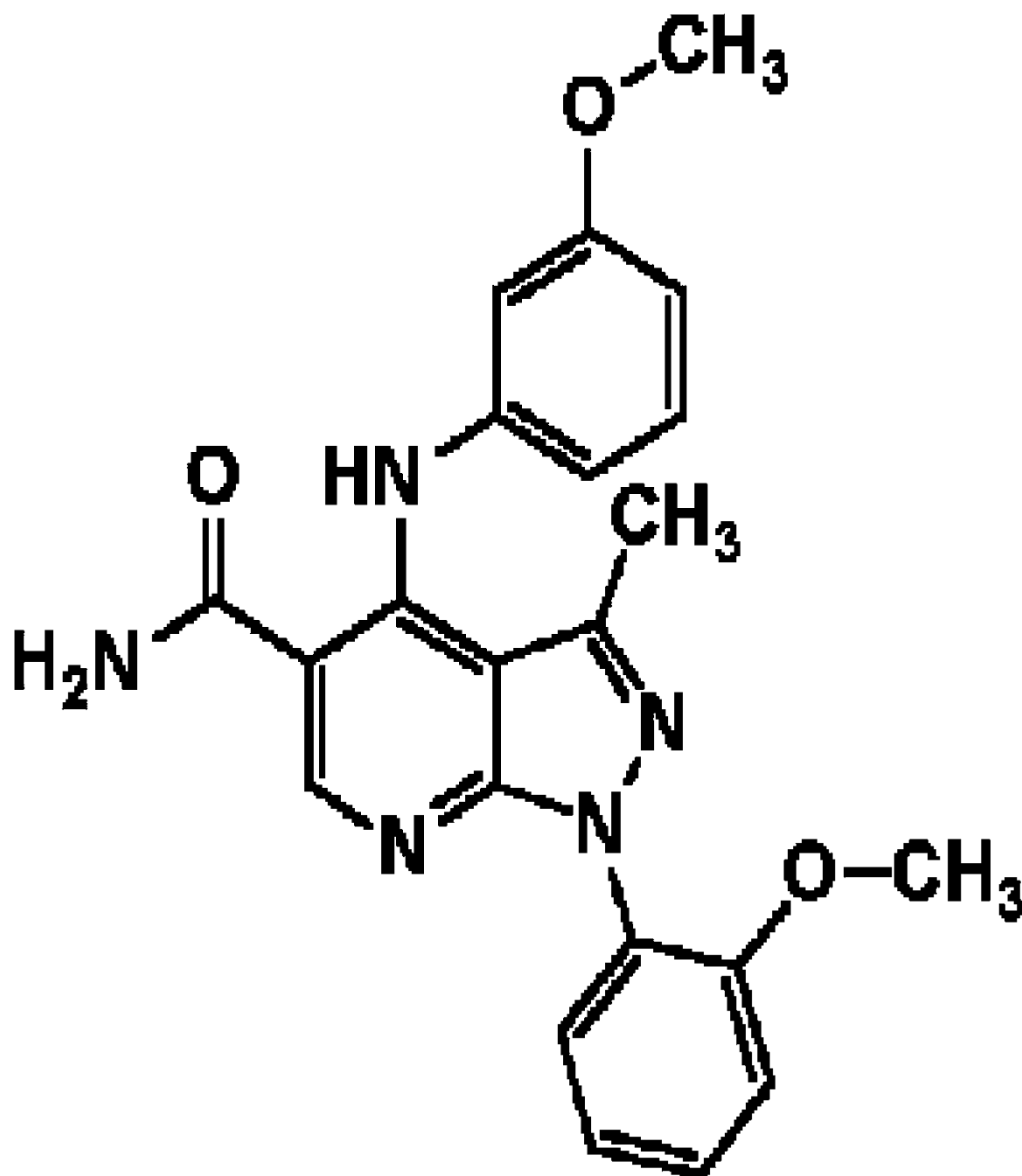
nmr (CDCl₃):δ 10.54 (s, 1H), 8.51 (s, 1H), 7.22 - 7.15 (m, 1H), 6.73 - 6.66 (m, 3H), 5.90 -5.70 (brs, 2H), 4.78 - 4.68 (m, 1H), 3.76 (s, 3H), 2.05 - 1.85 (m, 6H), 1.80 (s, 3H), 1.75 - 1.20(m, 4H).

[0188]

Working Example 1 (56)

1 - (2-methoxyphenyl) - 3 -methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 76]



【0189】

TLC:Rf 0.52 (クロロホルム:メタノール=9:1);

NMR (DMSO-d₆) : δ 10.87 (s, 1H), 8.63 (s, 1H), 8.25-8.15 (brs, 1H), 7.62-7.53 (brs, 1H), 7.52-7.46 (m, 1H), 7.38-7.34 (m, 1H), 7.27-7.21 (m, 2H), 7.10-7.05 (m, 1H), 6.74-6.66 (m, 3H), 3.73 (s, 3H), 3.70 (s, 3H), 1.77 (s, 3H).

[0189]

TLC:Rf 0.52 (chloroform :methanol =9 : 1);

nmr (DMSO -d₆) : δ 10.87 (s, 1H), 8.63 (s, 1H), 8.25 - 8.15 (brs, 1H), 7.62 - 7.53 (brs, 1H), 7.52 - 7.46 (m, 1H), 7.38 - 7.34 (m, 1H), 7.27 - 7.21 (m, 2H), 7.10 - 7.05 (m, 1H), 6.74 - 6.66 (m, 3H), 3.73 (s, 3H), 3.70 (s, 3H), 1.77 (s, 3H).

【0190】

実施例 1(57)

1,3-ジメチル-4-(3-カルバモイルフェニルアミノ)ピ
ラゾロ[5,4-b]ピリジン-5-カルボキサミド

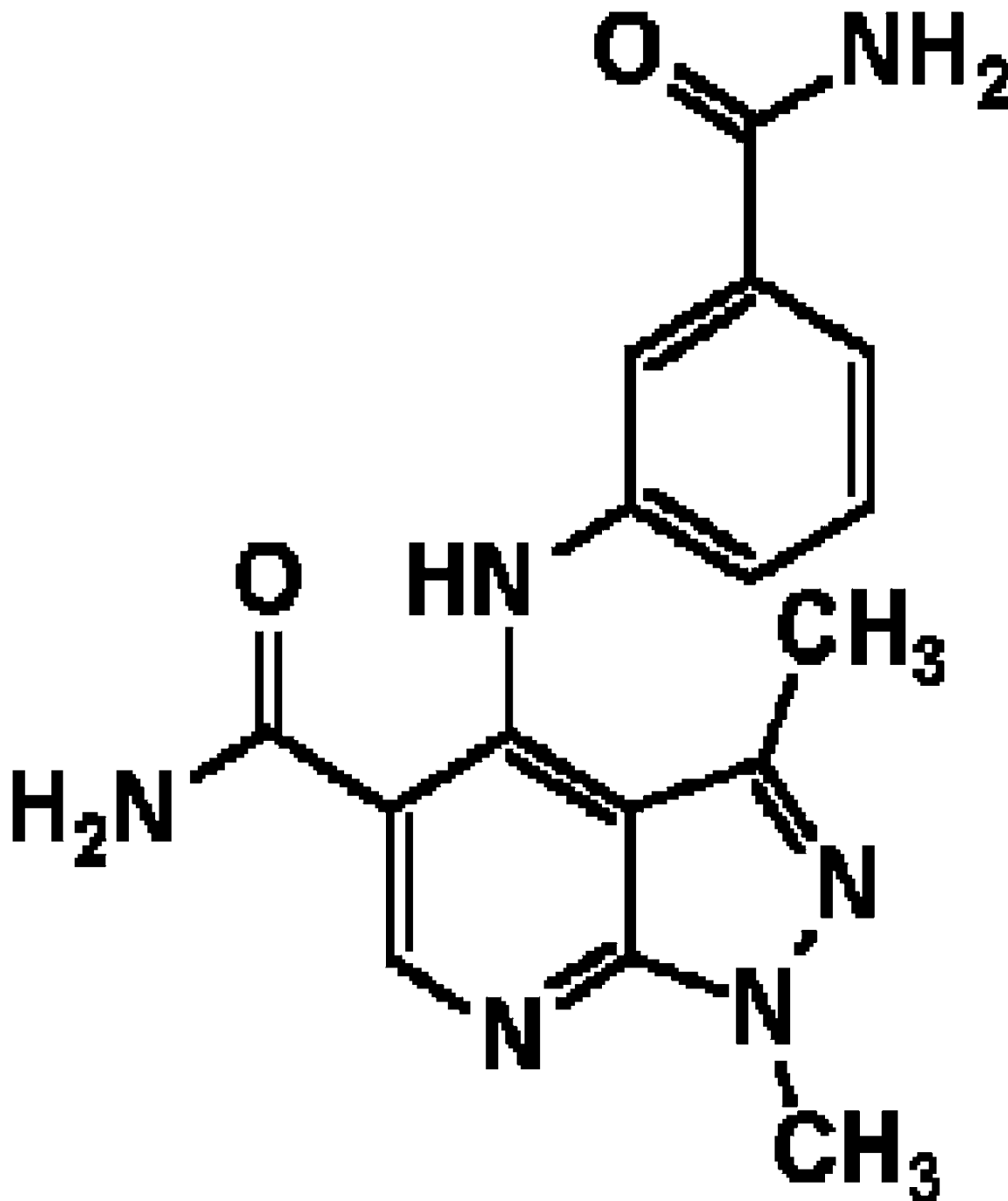
【化 77】

[0190]

Working Example 1 (57)

1 and 3 -dimethyl -4- (3 -carbamoyl phenylamino) pyrazolo
[5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 77]



【0191】

[0191]

TLC:Rf 0.34 (クロロホルム:メタノール=10:1);

NMR (DMSO- d_6) : δ 11.07 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.94(s, 1H), 7.63-7.56 (m, 3H), 7.39 (dd, J = 7.8, 7.8 Hz, 1H), 7.35 (s, 1H), 7.27-7.23 (m, 1H), 3.88 (s, 3H), 1.59 (s, 3H).

【0192】

実施例 1(58)

1,3-ジメチル-4-(3-(アミノカルバモイル)フェニル
アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 78】

TLC:Rf 0.34 (chloroform :methanol =10:1);

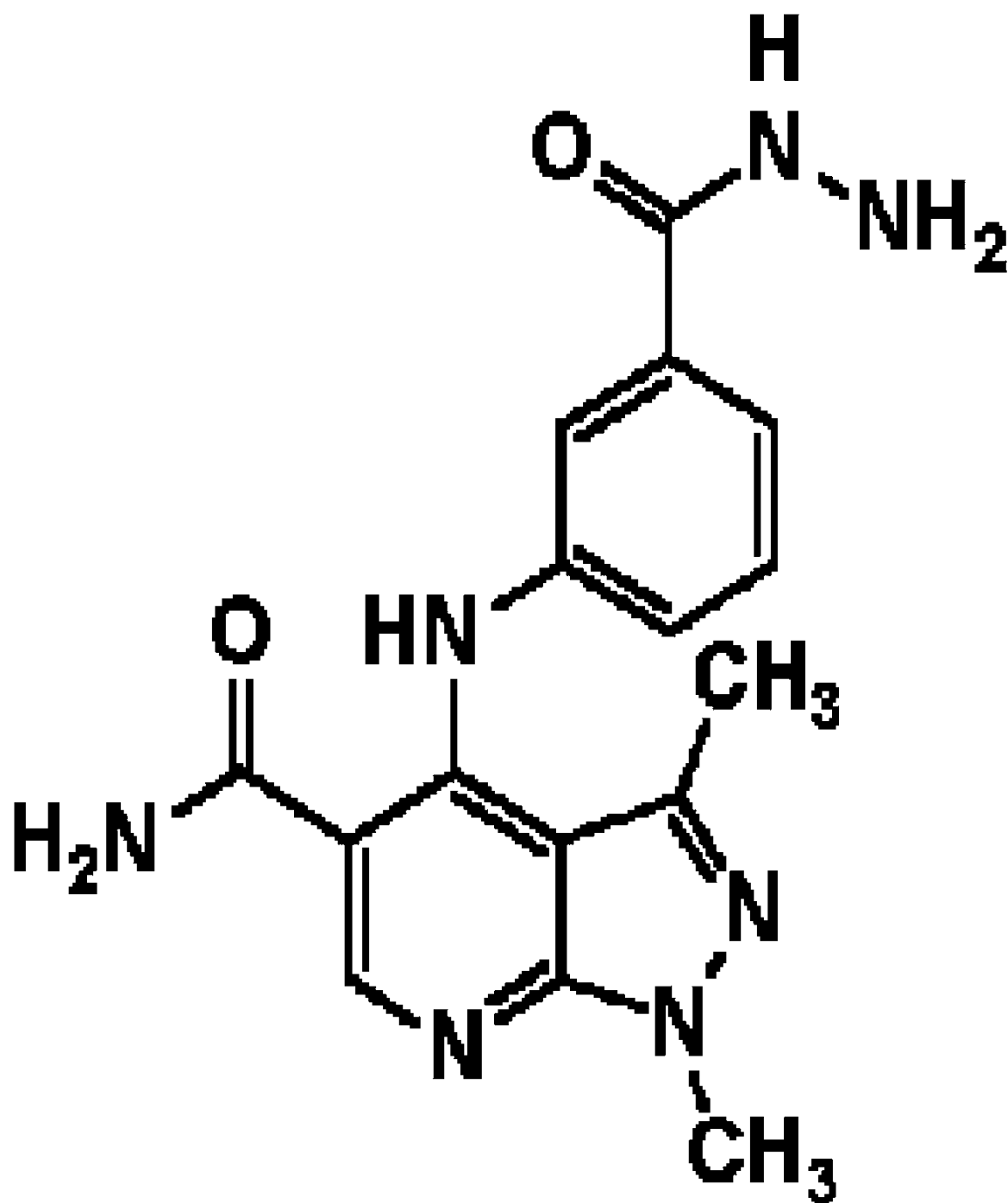
nmr (DMSO - d_6) : δ 11.07 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.94 (s, 1H), 7.63 - 7.56 (m, 3H), 7.39(dd, J=7.8, 7.8Hz, 1H), 7.35 (s, 1H), 7.27 - 7.23 (m, 1H), 3.88 (s, 3H), 1.59 (s, 3H).

[0192]

Working Example 1 (58)

1 and 3 -dimethyl -4- (3 - (amino carbamoyl) phenylamino)
pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 78]



【0193】

TLC:Rf 0.67 (クロロホルム:メタノール=5:1);

NMR (DMSO- d_6) : δ 11.05 (s, 1H), 9.73 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.58-7.51 (m, 3H), 7.39 (dd, J = 7.8, 7.8 Hz, 1H), 7.27-7.23 (m, 1H), 4.75-4.35 (m, 2H), 3.88 (s, 3H), 1.58 (s, 3H)。

[0193]

TLC:Rf 0.67 (chloroform :methanol =5:1);

nmr (DMSO - d_6); δ 11.05 (s, 1H), 9.73 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.58 - 7.51 (m, 3H), 7.39(dd, J=7.8, 7.8Hz, 1H), 7.27 - 7.23 (m, 1H), 4.75 - 4.35 (m, 2H), 3.88 (s, 3H), 1.58 (s, 3H).

【0194】

実施例 1(59)

1,3-ジメチル-4-(3-(メキシメキシ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

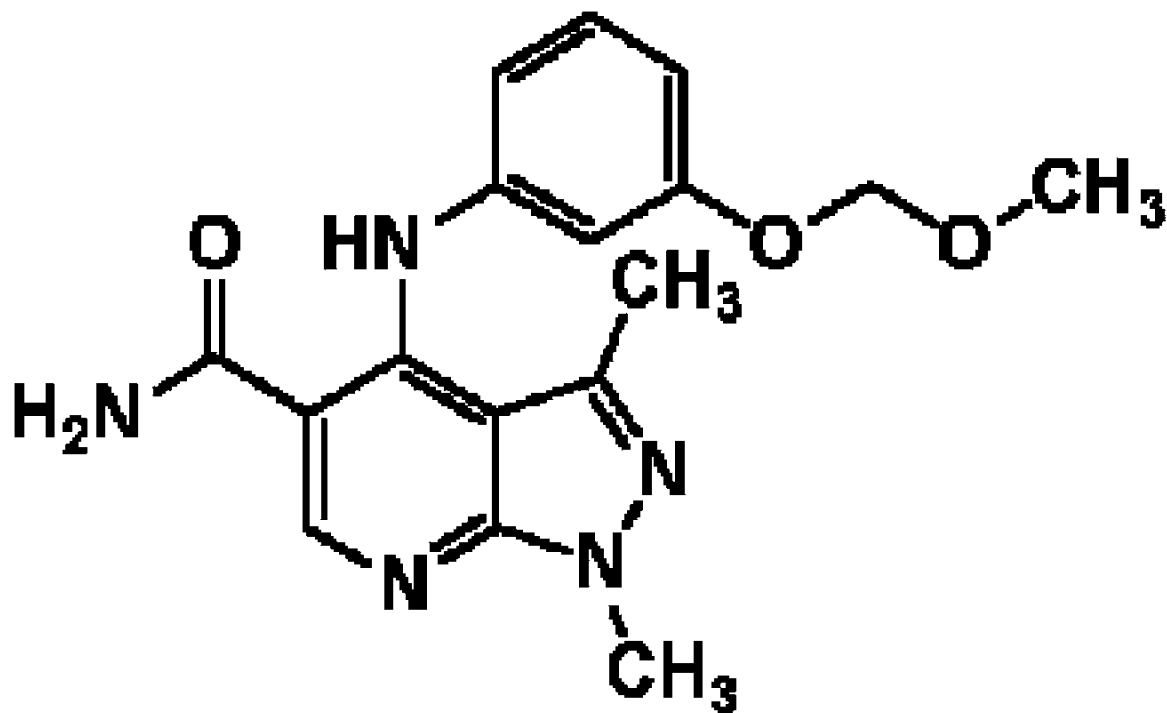
【化 79】

[0194]

Working Example 1 (59)

1 and 3 -dimethyl -4- (3 - (methoxy methoxy) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 79]



【0195】

TLC:Rf 0.50 (酢酸エチル);

NMR (DMSO-d₆) : δ 10.97 (s, 1H), 8.73 (s, 1H), 8.20 (brs, 1H), 7.55(brs, 1H), 7.24-7.18 (m, 1H), 6.80-6.68 (m, 3H), 5.12 (s, 2H), 3.88 (s,3H), 3.31 (s, 3H), 1.69 (s, 3H)。

【0196】

実施例 1(60)

1,3-ジメチル-4-(3-((ヒドロキシイミノ)メチル)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 80】

[0195]

TLC:Rf 0.50 (ethylacetate);

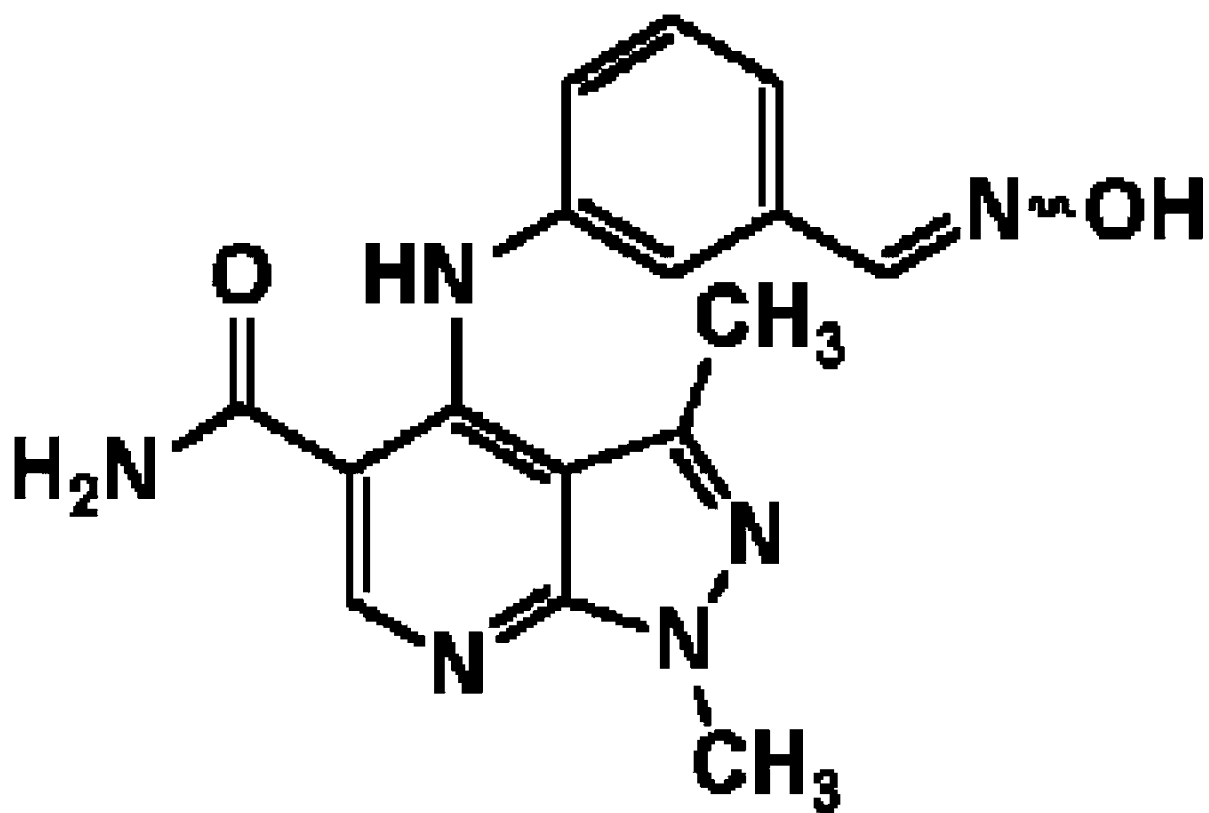
nmr (DMSO -d₆);:de 10.97 (s, 1H), 8.73 (s, 1H), 8.20 (brs, 1H), 7.55 (brs, 1H), 7.24 - 7.18 (m, 1H), 6.80- 6.68 (m, 3H), 5.12 (s, 2H), 3.88 (s, 3H), 3.31 (s, 3H), 1.69 (s, 3H).

[0196]

Working Example 1 (60)

1 and 3 -dimethyl -4- (3 - (hydroxy imino) methyl) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 80]



【0197】

TLC:Rf 0.47 (クロロホルム:メタノール=8:1);

NMR (DMSO- d_6) : δ 11.23 (s, 1H), 11.00 (s, 1H), 8.75 (s, 1H), 8.22(br, 1H), 8.07 (s, 1H), 7.57 (br, 1H), 7.37-7.28 (m, 3H), 7.14-7.09 (m, 1H), 3.88 (s, 3H), 1.66 (s, 3H).

【0198】

実施例 1(61)

1,3-ジメチル-4-(3-((メトキシイミノ)メチル)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 81】

[0197]

TLC:Rf 0.47 (chloroform :methanol =8:1);

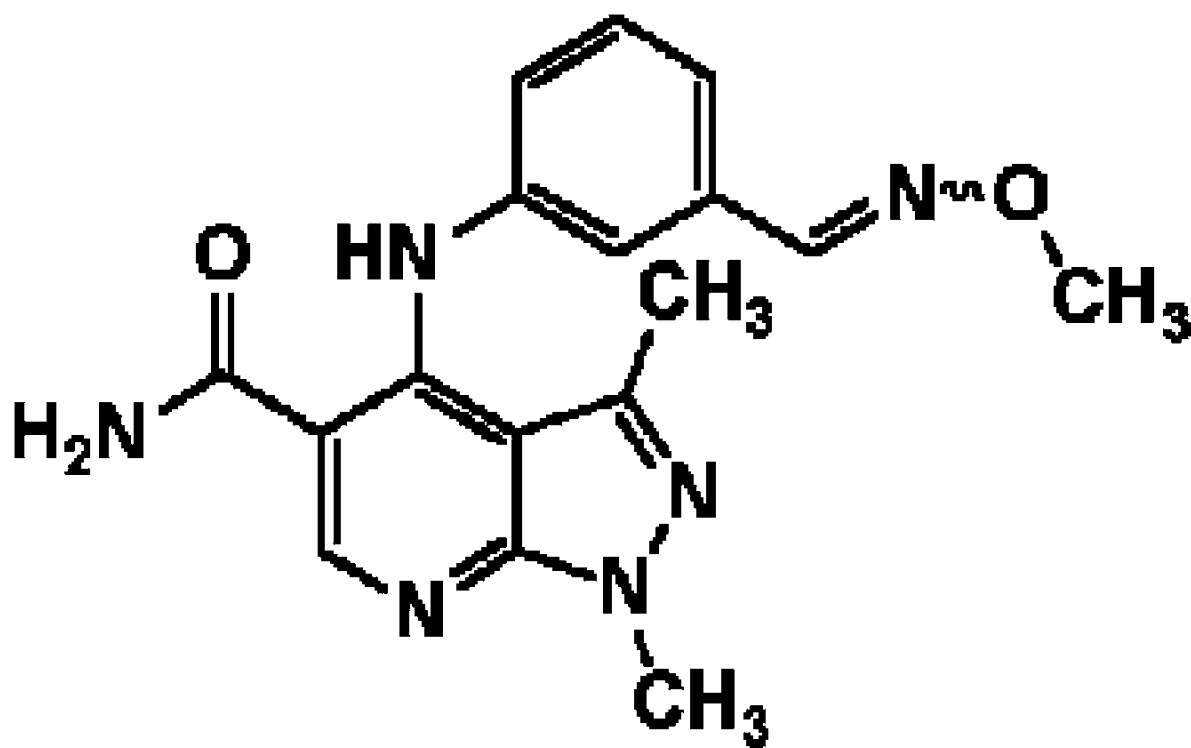
nmr (DMSO - d_6) : δ 11.23 (s, 1H), 11.00 (s, 1H), 8.75 (s, 1H), 8.22 (br, 1H), 8.07 (s, 1H), 7.57 (br, 1H), 7.37 - 7.28 (m, 3H), 7.14 - 7.09 (m, 1H), 3.88 (s, 3H), 1.66 (s, 3H).

[0198]

Working Example 1 (61)

1 and 3 -dimethyl -4- (3 - (methoxyimino) methyl) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 81]



【0199】

TLC:Rf 0.57 (クロロホルム:メタノール=8:1);

NMR (DMSO- d_6) : δ 11.01 (s, 1H), 8.75 (s, 1H), 8.21 (br, 1H), 8.17(s, 1H), 7.57 (br, 1H), 7.38-7.31 (m, 3H), 7.16-7.11 (m, 1H), 3.88 (s, 3H), 3.84 (s, 3H), 1.65 (s, 3H)。

【0200】

実施例 1(62)

1,3-ジメチル-4-(3-((アミノイミノ)メチル)フェニル
アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 82】

[0199]

TLC:Rf 0.57 (chloroform :methanol =8:1);

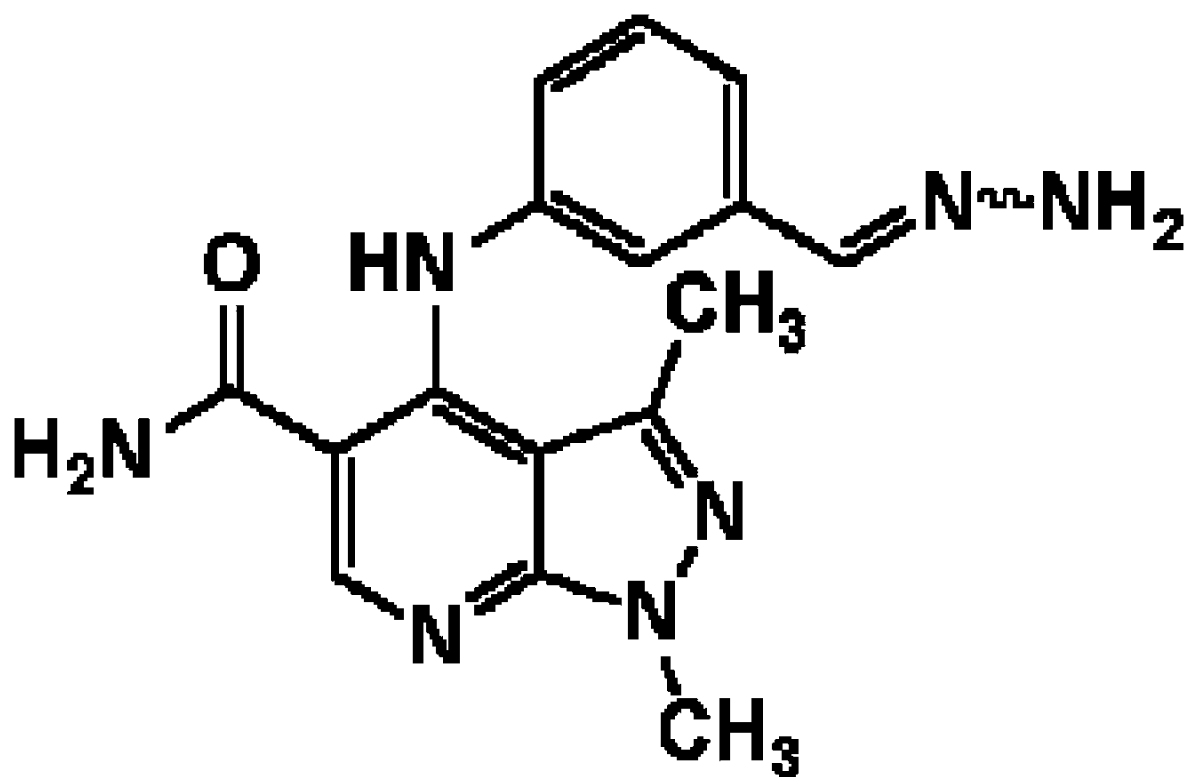
nmr (DMSO - d_6) : δ 11.01 (s, 1H), 8.75 (s, 1H), 8.21 (br, 1H), 8.17 (s, 1H), 7.57 (br, 1H), 7.38 - 7.31(m, 3H), 7.16 - 7.11 (m, 1H), 3.88 (s, 3H), 3.84 (s, 3H), 1.65 (s, 3H).

[0200]

Working Example 1 (62)

1 and 3 -dimethyl -4- (3 - (amino imino) methyl)
phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 82]



【0201】

TLC:Rf 0.47 (クロロホルム:メタノール=8:1);

NMR (DMSO- d_6) : δ 10.99 (s, 1H), 8.74 (s, 1H), 8.20 (br, 1H), 7.60(s, 1H), 7.56 (br, 1H), 7.30-7.16 (m, 3H), 6.99-6.96 (m, 1H), 6.77 (s, 2H), 3.88 (s, 3H), 1.64 (s, 3H)。

【0202】

実施例 1(63)

1,3-ジメチル-4-(3-シアノフェニルアミノ)ピラゾロ [5,4-b]ピリジン-5-カルボキサミド

【化 83】

[0201]

TLC:Rf 0.47 (chloroform :methanol =8:1);

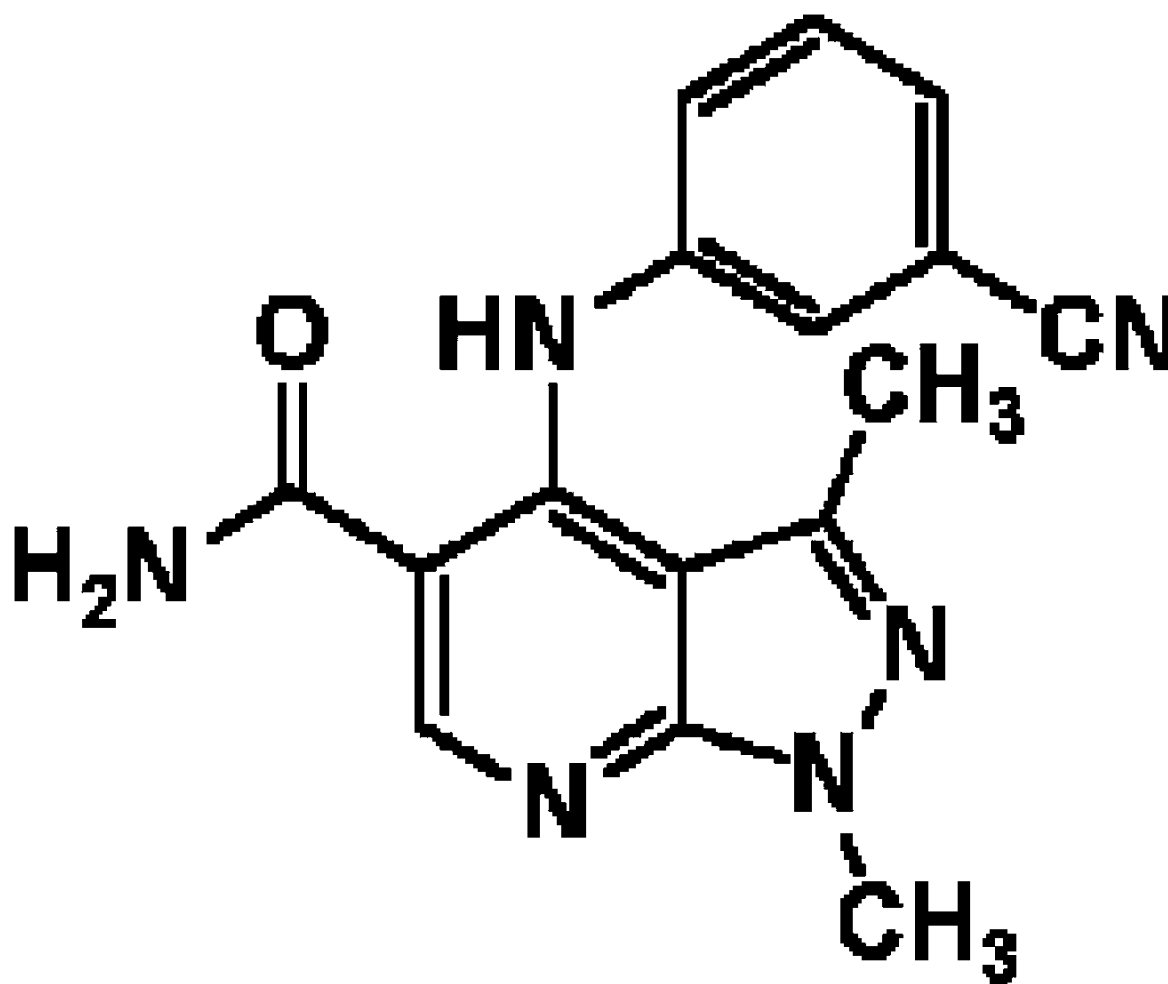
nmr (DMSO - d_6) : δ 10.99 (s, 1H), 8.74 (s, 1H), 8.20 (br, 1H), 7.60 (s, 1H), 7.56 (br, 1H), 7.30 - 7.16(m, 3H), 6.99 - 6.96 (m, 1H), 6.77 (s, 2H), 3.88 (s, 3H), 1.64 (s, 3H).

[0202]

Working Example 1 (63)

1 and 3 -dimethyl -4- (3 -cyanophenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 83]



【0203】

TLC:Rf 0.38 (酢酸エチル);

NMR (DMSO- d_6) : δ 10.83 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.60(br, 1H), 7.56-7.44 (m, 3H), 7.41-7.36 (m, 1H), 3.91 (s, 3H), 1.72 (s, 3H).

【0204】

実施例 1(64)

1,3-ジメチル-4-(3-((3S)-1-*t*-ブトキシカルボニル
ピロリジン-3-イルオキシ)フェニルアミノ)ピラゾロ
[5,4-*b*]ピリジン-5-カルボキサミド

【化 84】

[0203]

TLC:Rf 0.38 (ethylacetate);

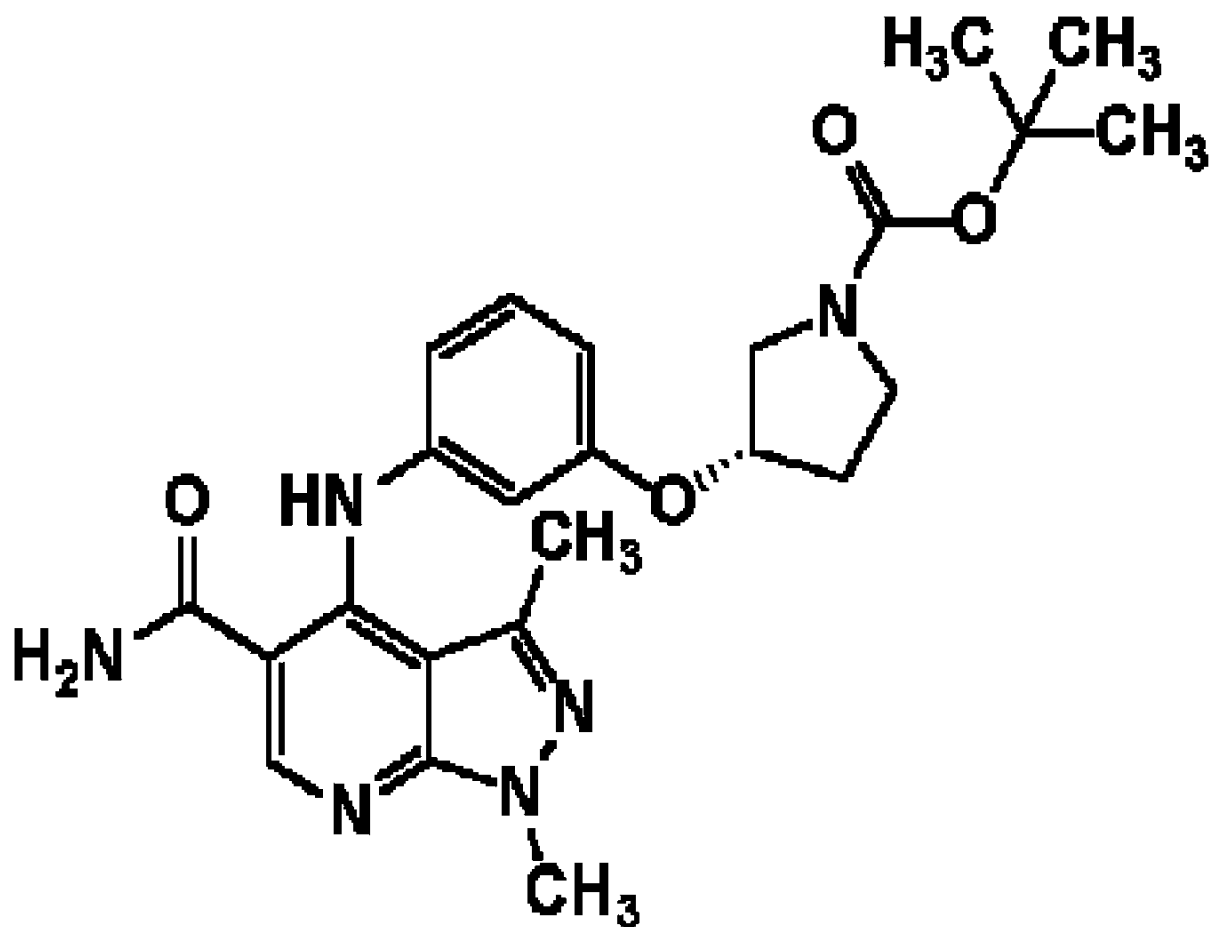
nmr (DMSO - d_6) : δ 10.83 (s, 1H), 8.76 (s, 1H), 8.23 (br, 1H), 7.60 (br, 1H), 7.56 - 7.44 (m, 3H), 7.41-7.36 (m, 1H), 3.91 (s, 3H), 1.72 (s, 3H).

[0204]

Working Example 1 (64)

1 and 3 -dimethyl -4- (3 - (3 S) - 1 -*t*-butoxycarbonyl)
pyrrolidine -3- yloxy) phenylamino) pyrazolo [5 and 4 -b]
pyridine -5-carboxamide

[Chemical Formula 84]



【0205】

TLC:Rf 0.35 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.59 (s, 1H), 8.54 (s, 1H), 7.20-7.15 (m, 1H), 6.78-6.63 (m, 3H), 6.00-5.70 (brs, 2H), 4.85-4.79 (m, 1H), 4.00 (s, 3H), 3.60-3.40 (m, 4H), 2.20- 2.00 (m, 2H), 1.78 (s, 3H), 1.46 (s, 9H)。

【0206】

実施例 1(65)

1,3-ジメチル-4-(3-((3S)-1-アセチルピロリジン-3-イルオキシ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 85】

[0205]

TLC:Rf 0.35 (chloroform :methanol =9 : 1);

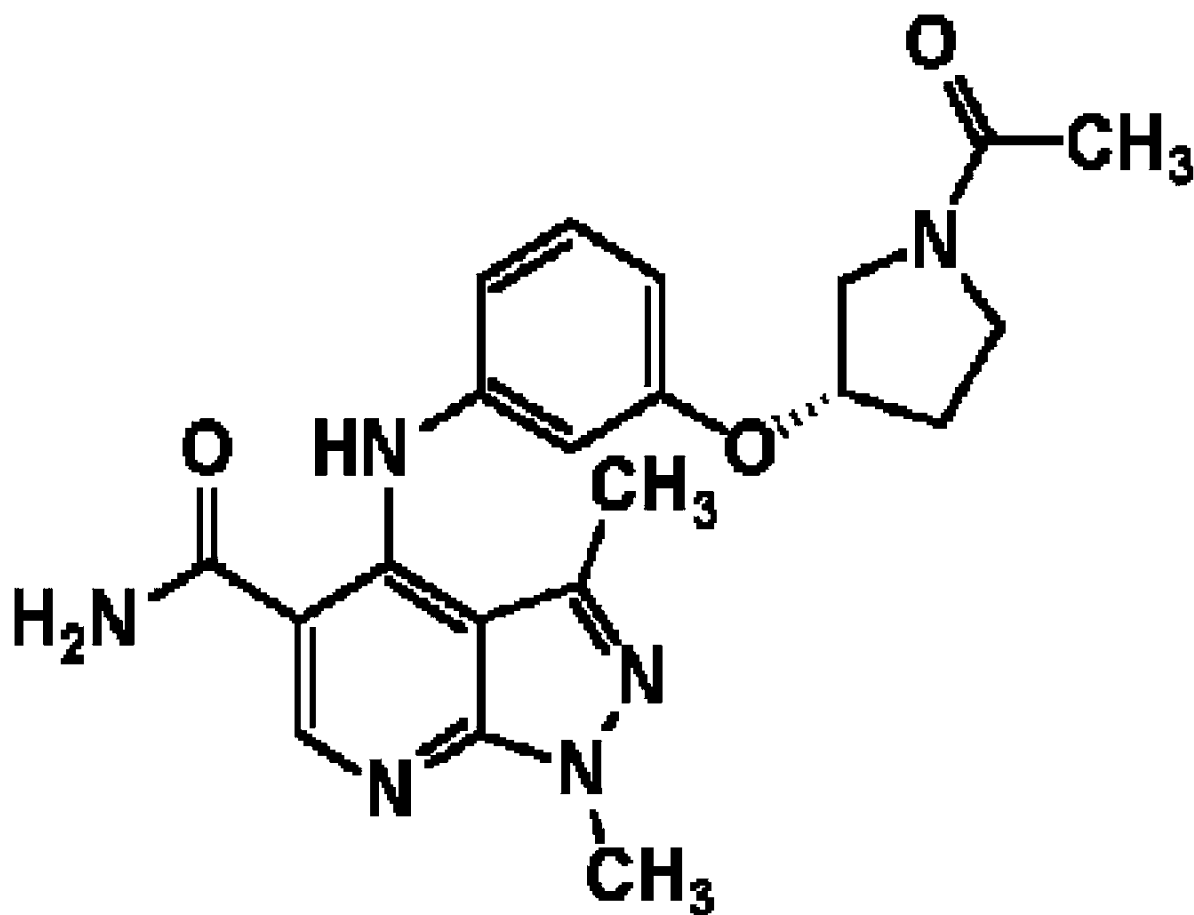
nmr (CDCl₃) : δ 10.59 (s, 1H), 8.54 (s, 1H), 7.20 - 7.15 (m, 1H), 6.78 - 6.63 (m, 3H), 6.00 -5.70 (brs, 2H), 4.85 - 4.79 (m, 1H), 4.00 (s, 3H), 3.60 - 3.40 (m, 4H), 2.20 - 2.00 (m, 2H), 1.78(s, 3H), 1.46 (s, 9H).

[0206]

Working Example 1 (65)

1 and 3 -dimethyl -4- (3 - (3 S) - 1 -acetyl pyrrolidine -3-yloxy) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 85]



【0207】

TLC:Rf 0.26 (クロロホルム:メタノール=9:1);

NMR (CDCl₃) : δ 10.61, 10.58 (s, 1H), 8.56, 8.55 (s, 1H), 7.23- 7.15 (m, 1H), 6.80-6.70 (m, 1H), 6.65-6.61 (m, 2H), 6.00-5.80 (br, 2H), 4.95-4.82 (m, 1H), 4.00 (s, 3H), 3.80-3.50 (m, 4H), 2.32-1.95 (m, 2H), 2.08, 2.04 (s, 3H), 1.79, 1.78 (s, 3H)。

【0208】

実施例 1(66)

1-ペンチル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 86】

[0207]

TLC:Rf 0.26 (chloroform :methanol =9 : 1);

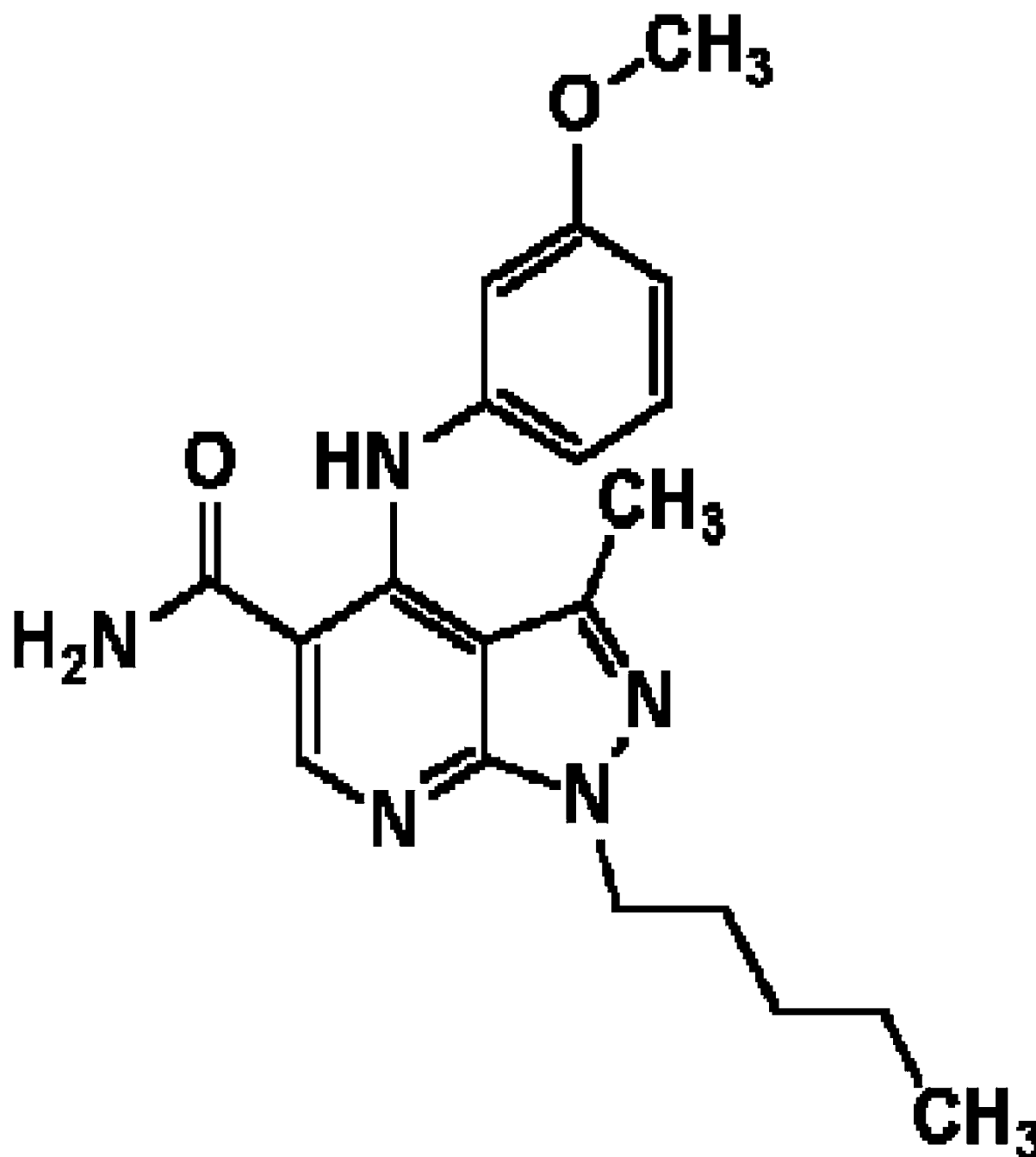
nmr (CDCl₃) : δ 10.61 and 10.58 (s, 1H), 8.56 and 8.55 (s, 1H), 7.23 - 7.15(m, 1H), 6.80 - 6.70 (m, 1H), 6.65 - 6.61 (m, 2H), 6.00 - 5.80 (br, 2H), 4.95 - 4.82 (m, 1H), 4.00 (s, 3H), 3.80 - 3.50 (m, 4H), 2.32 - 1.95 (m, 2H), 2.08 and 2.04 (s, 3H), 1.79 and 1.78 (s, 3H).

[0208]

Working Example 1 (66)

1 -pentyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 86]



【0209】

TLC:Rf 0.46 (ヘキサン:酢酸エチル=2:3);

NMR (DMSO- d_6) : δ 10.92 (s, 1H), 8.70 (s, 1H), 8.18 (br, 1H), 7.54(br, 1H), 7.23-7.17 (m, 1H), 6.71-6.67 (m, 2H), 6.65-6.61 (m, 1H), 4.26(t, J = 7.2 Hz, 2H), 3.69 (s, 3H), 1.84-1.73 (m, 2H), 1.69 (s, 3H), 1.36-1.13 (m, 4H), 0.82 (t, J = 7.1 Hz, 3H)。

[0209]

TLC:Rf 0.46 (hexane :ethylacetate =2:3);

nmr (DMSO - d_6) ; δ 10.92 (s, 1H), 8.70 (s, 1H), 8.18 (br, 1H), 7.54 (br, 1H), 7.23 - 7.17 (m, 1H), 6.71-6.67 (m, 2H), 6.65 - 6.61 (m, 1H), 4.26 (t, J=7.2Hz, 2H), 3.69 (s, 3H), 1.84 - 1.73 (m, 2H), 1.69 (s, 3H), 1.36 - 1.13 (m, 4H), 0.82 (t, J=7.1Hz, 3H).

【0210】

実施例 1(67)

1-シクロプロピルメチル-3-メチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

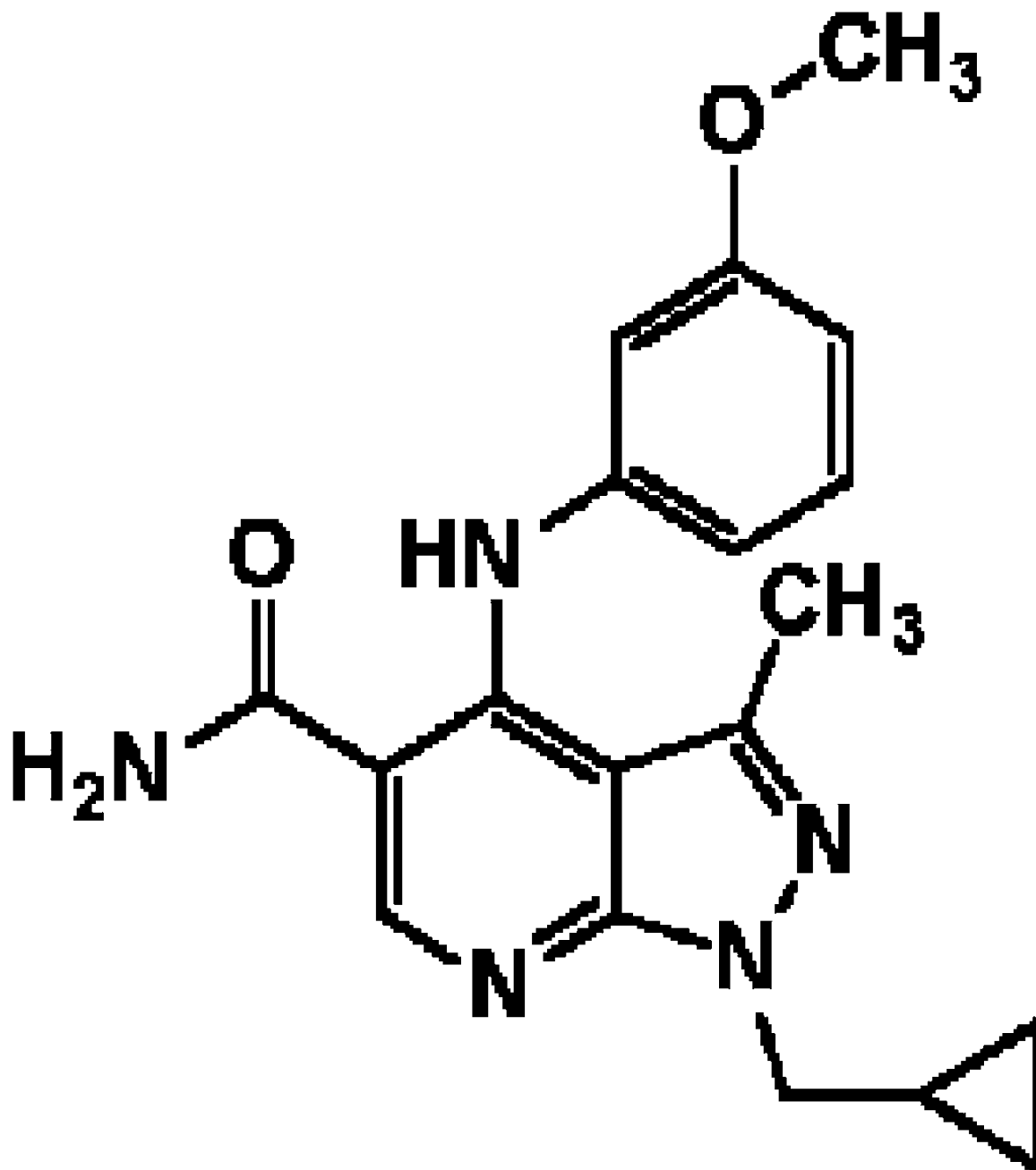
【化 87】

[0210]

Working Example 1 (67)

1 -cyclopropyl methyl -3- methyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 87]



【0211】

TLC:Rf 0.44 (クロロホルム:メタノール=10:1);

[0211]

TLC:Rf 0.44 (chloroform :methanol =10:1);

NMR (DMSO- d_6) : δ 11.25 (bs, 1H), 8.75 (s, 1H), 8.30 (bs, 1H), 7.64(bs, 1H), 7.25 (t, J = 7.8 Hz, 1H), 6.84-6.66 (m, 3H), 4.20 (d, J = 7.2Hz, 2H), 3.72 (s, 3H), 1.68 (s, 3H), 1.35-1.20 (m, 1H), 0.56-0.36 (m, 4H)。

【0212】

実施例 1(68)

1-シクロプロピルメチル-3-エチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 88】

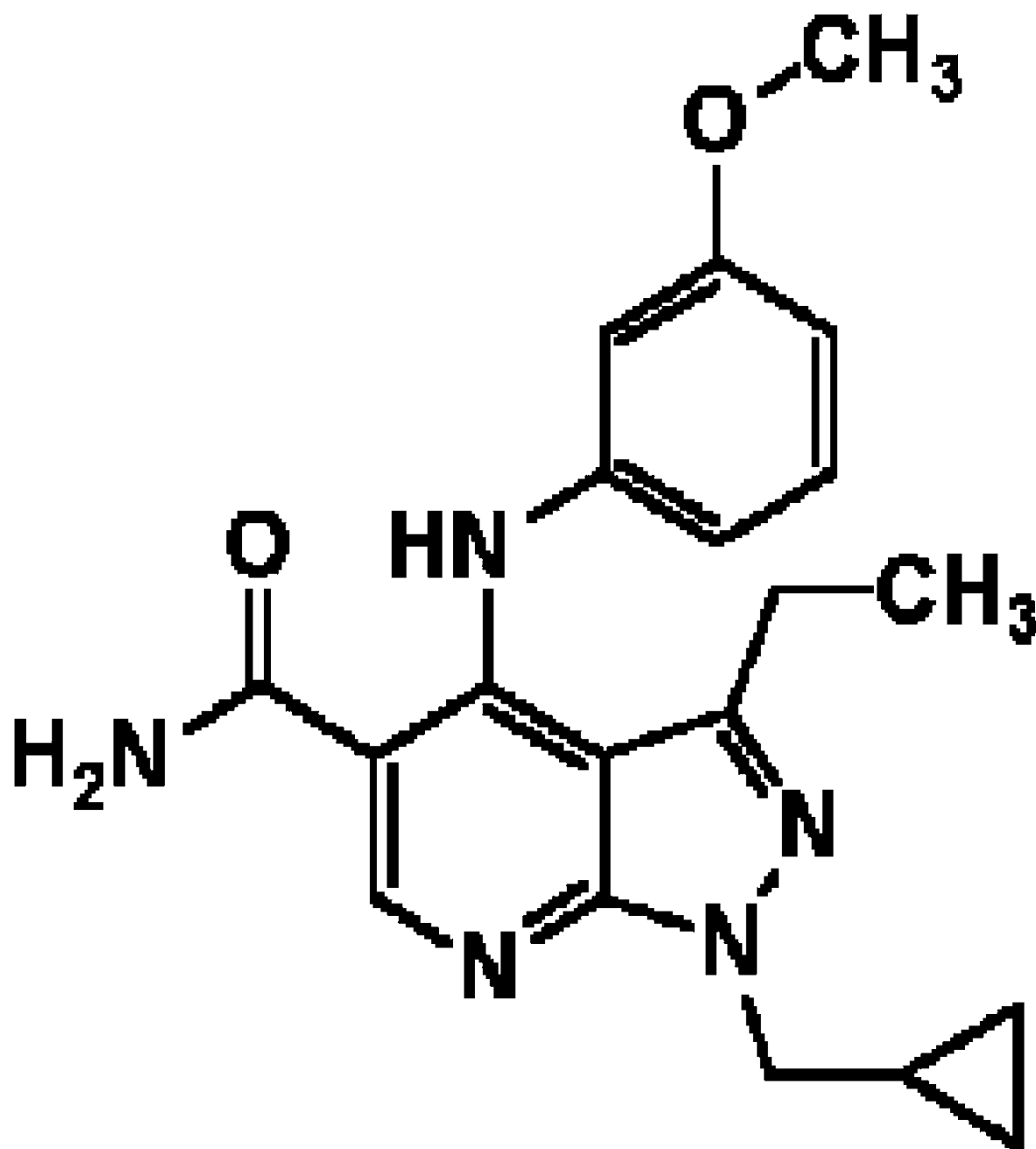
nmr (DMSO - d_6) : δ 11.25 (bs, 1H), 8.75 (s, 1H), 8.30 (bs, 1H), 7.64 (bs, 1H), 7.25 (t, J=7.8Hz , 1H), 6.84 - 6.66(m, 3H), 4.20 (d, J=7.2Hz , 2H), 3.72 (s, 3H), 1.68 (s, 3H), 1.35 - 1.20 (m, 1H), 0.56 - 0.36 (m, 4H).

[0212]

Working Example 1 (68)

1 -cyclopropyl methyl -3- ethyl -4- (3 -methoxyphenyl amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 88]



【0213】

TLC:Rf 0.45 (クロロホルム:メタノール=10:1);

NMR (DMSO- d_6) : δ 10.87 (s, 1H), 8.72 (s, 1H), 8.20 (bs, 1H), 7.57(bs, 1H), 7.19 (t, J = 8.1 Hz, 1H), 6.74-6.56 (m, 3H), 4.19 (d, J = 7.2Hz, 2H), 3.70 (s, 3H), 2.01 (q, J = 7.5 Hz, 2H), 1.35-1.20 (m, 1H), 0.94(t, J = 7.5 Hz, 3H), 0.54-0.35 (m, 4H)。

【0214】

[0213]

TLC:Rf 0.45 (chloroform :methanol =10:1);

nmr (DMSO - d_6): δ 10.87 (s, 1H), 8.72 (s, 1H), 8.20 (bs, 1H), 7.57 (bs, 1H), 7.19 (t, J=8.1Hz , 1H), 6.74 - 6.56(m, 3H), 4.19 (d, J=7.2Hz , 2H), 3.70 (s, 3H), 2.01 (q, J=7.5Hz , 2H), 1.35 - 1.20 (m, 1H), 0.94 (t, J=7.5Hz , 3H), 0.54 - 0.35(m, 4H).

[0214]

実施例 1(69)

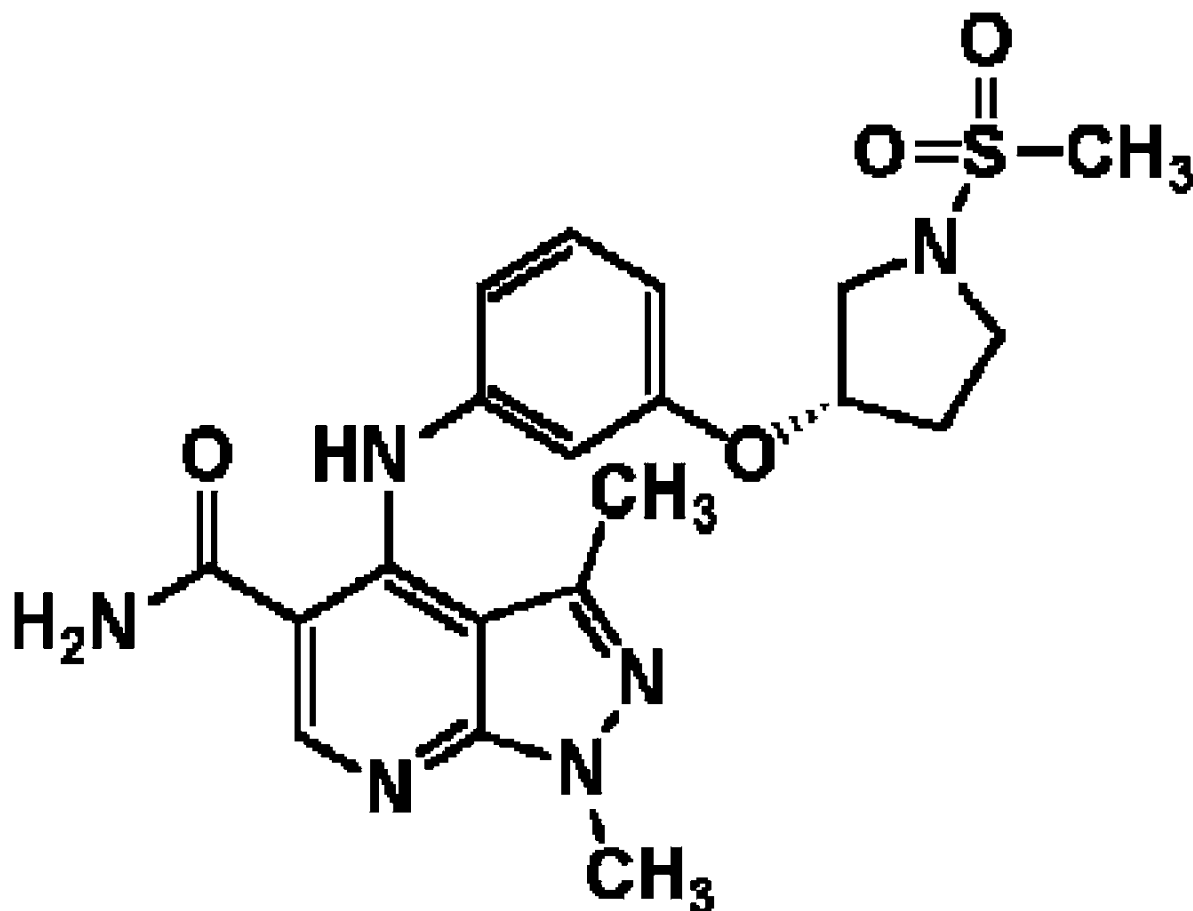
1,3-ジメチル-4-(3-((3S)-1-メシルピロリジン-3-イルオキシ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 89】

Working Example 1 (69)

1 and 3 -dimethyl -4- (3 - (3 S) - 1 -mesyl pyrrolidine -3-yloxy) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 89]



【0215】

TLC:Rf 0.31 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 10.93 (s, 1H), 8.73 (s, 1H), 8.25-8.15 (brs, 1H), 7.60-7.45 (brs, 1H), 7.21 (t, J = 9.0 Hz, 1H), 6.73-6.65 (m, 3H), 5.04-4.99 (m, 1H), 3.87 (s, 3H), 3.52 (d, J = 11.7, 4.2 Hz, 1H), 3.40-3.25 (m, 3H), 2.85 (s, 3H), 2.22-2.00 (m, 2H), 1.68 (s, 3H).

【0216】

実施例 2

1,3-ジメチル-4-(N-メチル-N-(3-メトキシフェニル)アミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

[0215]

TLC:Rf 0.31 (chloroform :methanol =9 : 1);

nmr (DMSO - d_6) : δ 10.93 (s, 1H), 8.73 (s, 1H), 8.25 - 8.15 (brs, 1H), 7.60 - 7.45 (brs, 1H), 7.21 (t, J=9.0Hz, 1H), 6.73 - 6.65 (m, 3H), 5.04 - 4.99 (m, 1H), 3.87 (s, 3H), 3.52 (dd, J=11.7, 4.2Hz, 1H), 3.40 - 3.25 (m, 3H), 2.85 (s, 3H), 2.22 - 2.00 (m, 2H), 1.68 (s, 3H).

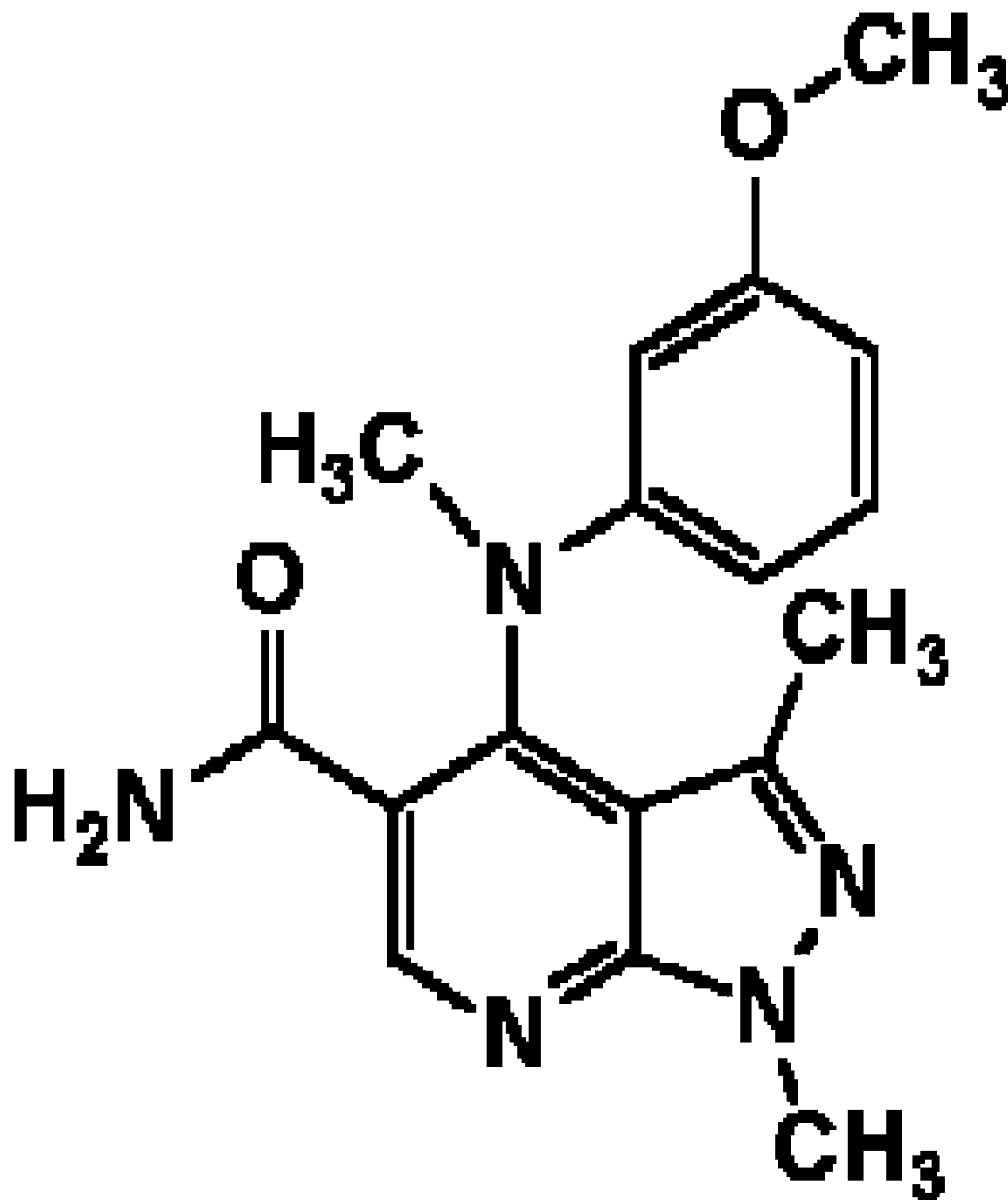
[0216]

Working Example 2

1 and 3 -dimethyl -4- (N- methyl -N- (3 -methoxyphenyl) amino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

【化 90】

[Chemical Formula 90]



【0217】

実施例 1

で製造した化合物(100mg)の無水トルエン(10mL)-無水アセトニトリル(5mL)溶液に、アルゴンガス気流下 0 deg C で、酸化銀(112mg)およびヨウ化メチル(568mg)を加え、室温で 15 時間攪拌

[0217]

Working Example 1

So anhydrous toluene of compound (100 mg) which is produced (10 ml) -anhydrous acetonitrile in (5 ml) solution , with 0 deg C under argon gas stream , 15 hours it agitated with the room temperature silver oxide (112 mg) and

した。

反応混合物をセライトでろ過し、ろ液を減圧下濃縮した。

残渣をシリカゲルカラムクロマトグラフィー(クロロホルム:メタノール=50:1)で精製し、下記物性を有する本発明化合物(98mg)を得た。

TLC:Rf 0.36 (クロロホルム:メタノール=9:1);

NMR (DMSO- d_6) : δ 8.64 (s, 1H), 7.62 (br s, 1H), 7.43 (brs, 1H), 7.03 (t, J = 8.1 Hz, 1H), 6.37-6.33 (m, 1H), 6.17-6.10 (m, 2H), 3.96 (s, 3H), 3.64 (s, 3H), 3.27 (s, 3H), 2.02 (s, 3H)。

【0218】

実施例 3

1,3-ジメチル-4-(3-((3S)-ピロリジン-3-イルオキシ)フェニルアミノ)ピラゾロ[5,4-b]ピリジン-5-カルボキサミド

【化 91】

including methyl iodide (568 mg).

reaction mixture was filtered with celite , filtrate under vacuum was concentrated.

residue was refined with [shirikagerukaramukuromatogurafii] (chloroform :methanol =50:1), the compound of this invention (98 mg) which possesses the below-mentioned property value was acquired.

TLC:Rf 0.36 (chloroform :methanol =9 : 1);

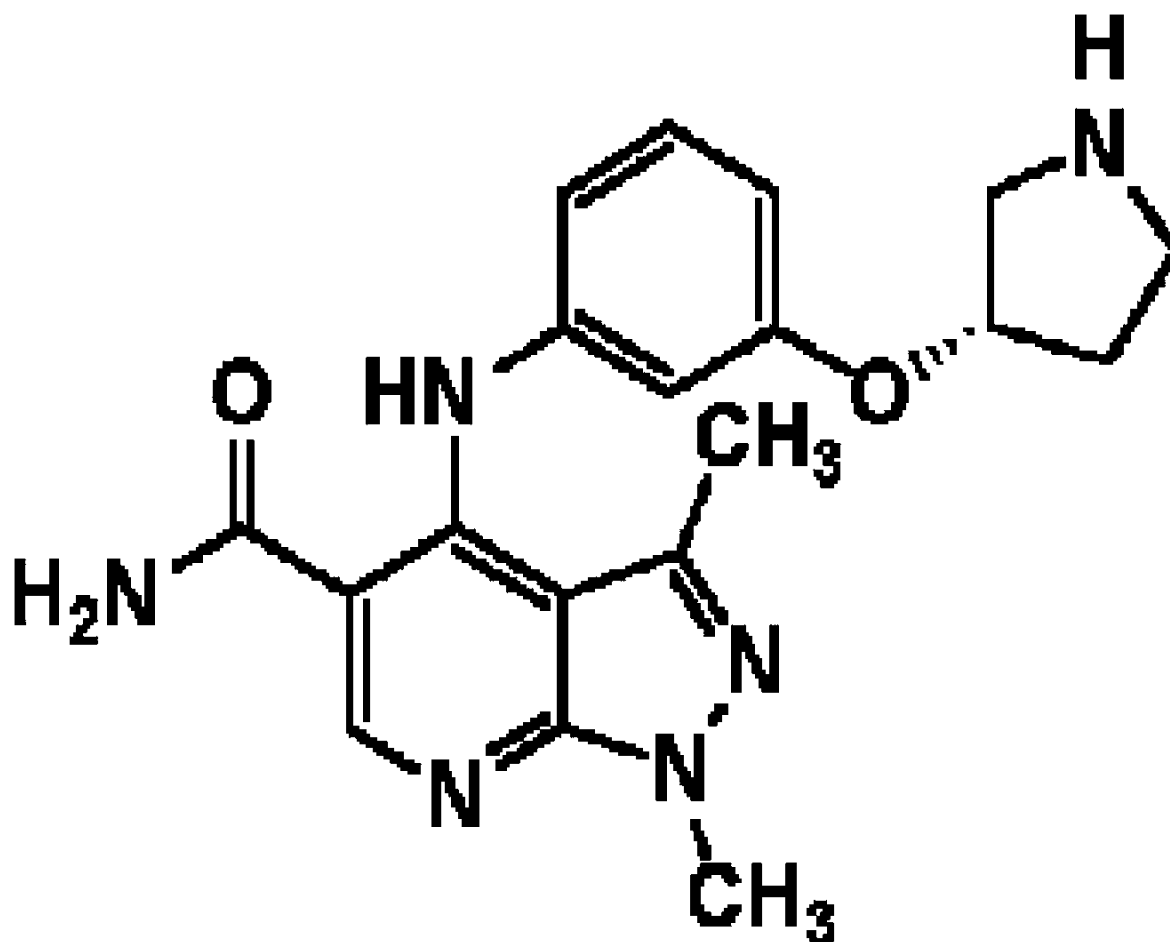
nmr (DMSO - d_6) : δ 8.64 (s, 1H), 7.62 (brs, 1H), 7.43 (brs, 1H), 7.03 (t, J=8.1Hz , 1H), 6.37 - 6.33 (m, 1H), 6.17- 6.10 (m, 2H), 3.96 (s, 3H), 3.64 (s, 3H), 3.27 (s, 3H), 2.02 (s, 3H).

[0218]

Working Example 3

1 and 3 -dimethyl -4- (3 - (3 S) -pyrrolidine -3- yloxy) phenylamino) pyrazolo [5 and 4 -b] pyridine -5-carboxamide

[Chemical Formula 91]



【0219】

実施例 1

(64)で製造した化合物(300mg)の酢酸エチル(10 mL)-メタノール(10mL)溶液に 10%塩化水素メタノール溶液(3mL)を加えて室温で 15 時間撹拌した。

反応混合物を減圧下濃縮した。

残渣を飽和炭酸ナトリウム水溶液で pH11 に調整後、酢酸エチルで抽出した。

抽出液を飽和炭酸ナトリウム水溶液で洗浄し、無水硫酸マグネシウムで乾燥後、減圧下濃縮し、下記物性値を有する本発明化合物(125mg)を得た。

TLC:Rf 0.36 (クロロホルム:メタノール:酢酸=10:2:1);

NMR (DMSO- d_6) : δ 10.93 (s, 1H), 8.73 (s, 1H), 8.23-8.12 (brs, 1H), 7.63-7.45 (brs, 1H), 7.21-7.15 (m, 1H), 6.70-6.60 (m, 3H), 4.

[0219]

Working Example 1

ethylacetate of compound (300 mg) which is produced with (64) (10 ml) -methanol in(10 ml) solution 15 hours it agitated with room temperature including 10% hydrogen chloride methanol solution (3 ml).

reaction mixture under vacuum was concentrated.

residue with saturated sodium carbonate aqueous solution in pH 11 after adjusting, was extracted with ethylacetate.

You washed extracted liquid with saturated sodium carbonate aqueous solution, after drying and under vacuum concentrated with anhydrous magnesium sulfate, you acquired the compound of this invention (125 mg) which possesses below-mentioned property value.

TLC:Rf 0.36 (chloroform :methanol :acetic acid =10:2:1);

nmr (DMSO - d_6) : δ 10.93 (s, 1H), 8.73 (s, 1H), 8.23 - 8.12 (brs, 1H), 7.63 - 7.45 (brs, 1H), 7.21 - 7.15 (m, 1H), 6.70 - 6.60 (m, 3H), 4.80 - 4.75 (m, 1H), 3.87 (s,

80-4.75 (m, 1H), 3.87 (s, 3H), 3.31 (brs, 1H), 2.98-2.63 (m, 4H), 1.98-1.82 (m, 1H), 1.70-1.60 (m, 1H), 1.67 (s, 3H).

3H), 3.31 (brs, 1H), 2.98 - 2.63(m, 4H), 1.98 - 1.82 (m, 1H), 1.70 - 1.60 (m, 1H), 1.67 (s, 3H).

【0220】

[0220]

【製剤例】製剤例 1

{Formulation Example } Formulation Example 1

以下の各成分を常法により混合した後打錠して、一錠中に 50mg の活性成分を含有する錠剤 100 錠を得た。

After mixing each component below with conventional method , pill-making doing, itacquired tablets 100pill which contains active ingredient of 50 mg in one tablet .

・1, 3-ジメチル-4-(3-メトキシフェニルアミノ)ピラゾロ[5, 4-									
<seq>5 and 4 - * 1 and 3 -di methyl- 4- (3 -methoxyphenyl amino) pyrazolo									
b]ピリジン-5-カルボキサミド							5.0g	
b]pyridine - 5- carboxamide								***** 5.0 g	
・カルボキシメチルセルロースカルシウム(崩壊剤)							0.2g	
* [karubokishimechiruseruroosukarushiumu] (disintegrating agent)								***** 0.2 g	
・ステアリン酸マグネシウム(潤滑剤)							0.1g	
*amount of magnesium stearate ** (lubricant)								***** 0.1 g	
・微結晶セルロース							4.7g	
*microcrystalline cellulose								***** 4.7 g	

【0221】

[0221]

製剤例 2

Formulation Example 2

以下の各成分を常法により混合した後、溶液を常法により滅菌し、5ml ずつアンプルに充填し、常法により凍結乾燥し、1 アンプル中 20mg の活性成分を含有するアンプル 100 本を得た。

After mixing each component below with conventional method , sterilization it did the solution with conventional method , was filled in ampoule , 5 ml lyophilizing itdid with conventional method , it acquired ampoule 100 book which contains the active ingredient of 20 mg in 1 ampoule .

・1, 3-ジメチル-4			- (3-メ			トキシフェニルアミノ)ピラゾロ[5, 4-			
* 1 and 3 -di methyl- 4			<seq>3 - [me] </seq>-			<seq>5 and 4 - [tokishifeniruamino]) pyrazolo			
b]ピリジン-5-カルボキサミ			ド				2.0g	
b]pyridine - 5- [karubokisami]			[do]					***** 2.0 g	
・マンニトール							20 g	

*mannitol													***** 20 g	
・蒸留水												1000m	l
_____													_____	—
*distilled water													**** 1000 m	l